APRIL 2, 1951 NEWS ISSUE

Electrical World

Price 35 Cents

A McGRAW-HILL PUBLICATION

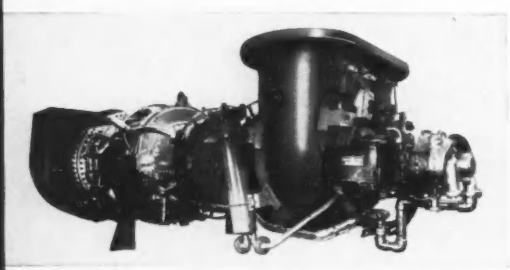
Charles E. Wilson—For Cooperation in 1950, the James H. McGraw Award

Teachers Add "E" for "Electricity" to 3 R's ..... Page 16

What Will the Bond Market Do Next? ..... Page 30

Clear Track for the Gas Turbine?

The horsepower of America's first gas turbine locomotive is equivalent to three conventional diesel-electric freight units.



Locomotive gas turbine packs 4500 hp into a comparatively small space. It burns low-cost Bunker C oil, requires virtually no water.

Operating Record of Locomotive Signifies Broader Use of Gas Turbines

Utility men, familiar with the immense potentialities of the combustion gas turbine for power generation, are watching with particular interest the operating results of the nation's first gas turbine-electric locomotive, in use on the Union Pacific railroad.

This 4500-hp unit, built by General Electric, has already completed more than 6,000 hours of operation, covering more than 100,000 miles. It has handled more than 300,000,000 gross ton-miles in regular freight service. And Union Pacific has recently ordered ten more gas turbine locomotives of similar design.

What does this locomotive's record mean to you?

It was the forerunner of successful utility installations such as the Belle Isle power plant of Oklahoma Gas and Electric. It has supplied data for design details of gas turbines now in production. Its performance record will lead to still wider applications of America's newest prime mover.

We can see a "clear track ahead" for the gas turbine.

General Electric Company, Schenectady 5, New York.

MORE POWER TO AMERICA

GENERAL ELECTRIC

301-154

The Electrical Week

INDUSTRY MOBILIZATION—Ken. G. Whitaker has been appointed Depa's "public power" deputy administrator, with James F. Fairman slated for the "private power" post (p 4) . . . New OPS formula will roll back machinery prices (p 4) . . . Utilities which need help in getting materials and equipment should see Depa's expediting branch (p 4) . . . NPA rule aids production schedules of manufacturers of rigid electrical conduit (p 4) . . . Murray D. Smith joins OPS as director of Industrial Materials and Manufactured Goods Division (p 4) . . . PED says serious bottlenecks are developing in parts, components, and auxiliary equipment (p 5) . . . George C. Hochwalt and A. B. Leonard have been appointed PED section chiefs (p 5) . . . Industry M orders start on p 5 . . . DPA sets up electronics industry control board (p 6) . . . Bonnell W. Clark to head NPA's Electrical Division, Charles F. Kells to become director of Engine and Turbine Division (p 6) . . . Ballasts for fluorescent lights are in short supply (p 6).

WASHINGTON—WSB is asked to approve two 10% wage increases granted CIO Utility Workers in California (p 12) . . . FPC receives request from Washington Water Power Co for a preliminary permit for a hydroelectric project in Montana and considers license applications from two Midwest utilities for similar projects (p 14).

ELSEWHERE—Charles E. Wilson receives James H. McGraw Medal for Cooperation (p 6) . . . Industry would like to spend $21.5 billion on expansion in 1951 (p 11) . . . Largest single length of submarine cable starts cross-country trip (p 13) . . . George F. Gant resigns as general manager of TVA (p 14) . . . Eastern Utility Associates, Boston, submits plan to SEC for single operating-holding company to replace its present holding company system (p 20) . . . And utility bond yields are at the highest level since November, 1948 (p 30).

• • •

And no ersatz . . . Mobilization officials in Washington are being told to avoid the word "substitutes" and talk about "alternatives".

Rudolf W. Staud, sales promotion manager of Benjamin Electric Manufacturing Co and a former president of the Illuminating Engineering Society, died March 28 in St. Francis Hospital, Evanston, Ill, following a heart attack.

The CIO's Committee on Regional Development and Conservation has written Depa Administrator C. B. McManus to protest plans for three federal power projects in the Northwest. The projects—Priest Rapids, Dalles, and Ice Harbor—do not include adequate provisions for protecting Columbia River salmon, the labor group charged.

Solution by Law—A law has been introduced in the Pennsylvania Senate requiring all electric power companies to maintain and operate power lines so that current delivered to household consumers would be rated voltage at all times without diminution or stoppage at any time.

Defense Electric Power Administration now has more than 100 employees, but there are still several jobs vacant.

Shipments of electric lamps from factories and factory warehouses amounted to 2,088 million lamps valued at $243 million in 1950, the Bureau of the Census has estimated. Production in 1950, was 2,085 million lamps with 3 million shipped out of stocks on hand at the beginning of the year.

The most amazing thing about the nation's mobilization program is that so far no one has advocated stockpiling electricity.

Notes From The News

Not a windstorm this time, but a landslide disrupted service for ten towns and a radio station in West Virginia and Ohio recently. The slide, near the Midway substation of Ohio Power Co, threw trees against a high voltage line and undermined poles supporting a line leading to Wheeling Creek Valley communities. Crews from the company's Bellaire division restored service within an hour . . . Commonwealth Edison Co, Chicago, has signed a contract to purchase 200 million tons of coal between May 1, 1951 and December 31, 1982, from Peabody Coal Co there . . . The United States Military Academy at West Point is slated to have its electrical distribution system rehabilitated. Guy B. Panero, Engineers, is preparing plans which include replacement of some transformers, addition of others, and redesigning of street lighting . . . A line break near Kosmosdale, Ky., recently was believed caused when a low-flying plane from Godman Air Force Base struck the wire. Officials at the base examined planes and found one with marks indicating it hit the wire. The pilot, a spokesman said, made no report of having a mishap.

Whitaker Is Deputy Administrator; Fairman Slated for Other Depa Post

Ken G. Whitaker, administrative assistant to the Electric Power Board of Chattanooga, Tenn., was appointed deputy administrator of the Defense Electric Power Administration last week. As "Electrical World" went to press, announcement was expected that James F. Fairman, a vice president of Consolidated Edison Co, New York, had also been appointed a deputy administrator.

Appointments of Whitaker and Fairman will give Depa Administrator C. B. McManus deputies from both public power and the private utilities.

Whitaker, who held his post with the Chattanooga Power Board since it was founded in 1939, is also secretary of the Power Distributors Information Committee of the Tennessee Valley Power Association. He was scheduled to assume his new duties April 2.

Fairman, whose formal appointment was understood to have been held up during the search for a public power deputy administrator, has been serving with Depa for a month.

In another major Depa appointment, R. Frank Brower, Consolidated Edison, was named director of the Power Supply Division. Brower had been serving in the division's regional coordination branch assigned to Region II. That assignment is now being handled by Iver Ekstram, Commonwealth Edison Co, Chicago. J. E. Moore, Ebasco Services, who had served as acting director of the Power Supply Division, continues as a consultant to McManus.

OPS Formula Will Roll Back Machinery Prices

The Office of Price Stabilization is putting out an order that machinery makers probably won't like.

The order replaces the general freeze of Jan. 25 with a new set of ceilings specifically designed for the machinery trades. It covers electrical machinery as well as all other kinds. And it makes necessary big rollbacks from current prices.

Under the new regulation, machine-builders are required to make their ceilings equal to the highest price they charged in the first half of 1950 adjusted for increases in direct labor and materials costs.

This formula differs from that being written into OPS's forthcoming order for manufactured goods. That regulation uses a mid-1950 base and also limits increases to either 10% since Korea or 5% since Jan. 25.

The order makes no provisions for the recovery of increased engineering developmental and other indirect (or overhead) costs. That means profit margins are certainly going to be squeezed. The fact that machinery prices actually have risen more than the formula provides means manufacturers will have to roll back prices all along the line.

Some industry people have told OPS they would prefer to stay under the Jan. 25 freeze rather than operate under the special order.

E. J. HAND, formerly with the Commerce Department's Office of Small Business, who is serving as deputy director of NPA's Power Equipment Division

Smith Joins OPS Division

Murray D. Smith, executive officer of the Western United Gas Division of the Public Service Co of Northern Illinois, has been granted a leave of absence to join the Office of Price Stabilization. He will be director of the Industrial Materials and Manufactured Goods Division.

Depa Expediting Branch Has Helped 200 Utilities

Some 200-300 electric utilities have been assisted in getting materials or equipment by the materials and equipment expediting branch of Defense Electric Power Administration's Materials and Equipment Division.

About half of the cases have been handled informally by calls and contacts with manufacturers or suppliers of equipment or materials. The other half of the cases have been handled by obtaining DO ratings from the National Production Authority for utility orders.

Although the Controlled Materials Plan, scheduled to be put into effect July 1, will help solve some materials problems, A. G. Skina, chief of the expediting branch, believes industry requests for assistance will continue to multiply as materials and equipment become more difficult to obtain.

The branch does not have special forms for utilities requesting assistance to fill out, but its operations are governed by Depa's EO-2 order. This order specifies what information is required in connection with requests for procurement assistance by the administration.

Skina, an Idaho engineer who served with the office of military government in Germany, has as his assistants Erroll Dunbar, formerly of Potomac Electric Power Co, and Alfred T. Germano, formerly with the Navy Department in Washington.

NPA Revises DO Rule on Rigid Conduit Makers

National Production Authority has moved to prevent Defense Orders from disrupting production schedules of rigid electrical conduit manufacturers.

In an amendment to its M-17 order, NPA authorized conduit makers to reject DO-rated orders when they exceed 25% of a firm's monthly output. The action, NPA explained, was designed to equalize the DO load among manufacturers of rigid electrical conduit.

M-17, originally issued in December, provided DO percentage limitations for pressed, extruded, and machined steatite electrical ceramic products, electron tubes except power tubes, and fixed composition resistors.

D. A. GRIFFITH, Allis-Chalmers Manufacturing Co, is chief of Transformer Section of NPA's Power Equipment Division

M. J. KILROY, Westinghouse Electric Corp, chief of the Condenser Section of NPA's Power Equipment Division

Output of Major Power Equipment Bottlenecked by Lack of Components

Serious bottlenecks are developing in parts, components, and auxiliary power equipment. This "big problem of little things" has been reported by the National Production Authority's Power Equipment Division.

PED described parts and components as the most serious power equipment bottleneck. Producers of major equipment cannot extend their own DO ratings to the sub-suppliers who make essential parts and components for the larger units on which DO's have been authorized. Power equipment manufacturers are being authorized to use DO's for 11 classes of heavy power equipment, but the smaller shops which produce fans, blowers, pumps, valve assemblies, governors, and similar components are not getting DO's.

Auxiliary equipment—In some cases the same type of item as a component except that it is not mounted on the larger unit—is subject to the same difficulty. The result threatens to be delays in the completion, installation, or operation of new generating units because of lags in the production of smaller pieces of complete power plants.

Although parts, components, and auxiliary equipment are the biggest threat to power equipment production, there are other bottlenecks affecting various manufacturers and products.

Raw and semi-fabricated materials—The DO-45 rating has helped, but there are still spot bottlenecks in such items as castings of malleable iron, steel, or alloy steel procured from sub-suppliers. Manufacturers who make up their own alloys have had some difficulties in getting such metals as nickel, columbium, and molybdenum. Shortages of chemicals also are holding up delivery of some power equipment.

Facilities and equipment—Capacity of the power equipment industry is considered adequate with the exceptions of diesel production which is being expanded to meet the demands of the aluminum program and the expansion of test facilities by turbine manufacturers. Machine tools are the major manufacturing equipment problem of the industry.

Manpower—Engineering and drafting personnel are in short supply. PED officials say that "time is being lost at the drawing boards" because of the lack of engineering draftsmen. The power equipment industry also has lost some skilled labor when lack of materials forced furloughs. This skilled labor is not easily replaced.

Transportation—Deep well and depressed center railroad cars for shipping heavy power equipment may be a bottleneck.

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PED Changes Continue; 2 Section Chiefs Named

National Production Authority's Power Equipment Division continues to add and shift personnel.

George C. Hochwalt, S. Morgan Smith & Co, York, Pa., has been appointed chief of PED's hydraulic turbine section. A. B. Leonard, who headed that section, moves to the post of chief of the coordination section. Also transferring to coordination is James Hays, Cleveland Electric Illuminating Co.

Charles F. Kells, on leave as assistant to the president of West Penn Electric Co, has been formally named director of PED by NPA Administrator Manly Fleishmann (EW, March 26, p 88). Kells succeeded Robert M. Hatfield, Jr., who returned to Combustion Engineering-Superheater, Inc, in Glendale, Cal.

New PED staff members include Herbert G. Bryan, Rural Electrification Administration, in the diesel and gas engine section, and Edwin F. Kuehule, formerly an engineer with the District of Columbia, in the boiler section.

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Industry M Orders

The following M orders of interest to the electrical industry have been

(*Continued on page 6*)

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Industry Mobilization

(*Continued from page 5*)

issued by the National Production Authority. Orders not of interest have been omitted. Copies of orders may be secured from the National Production Authority, Washington 25, D. C., or any regional office of the Department of Commerce.

M-49 puts **columbium, tantalum,** and their **ferro-alloys** under allocation.

Directions to Previous Orders

Dir 1 to M-12 allows **copper** and **copper-base alloy** users, shut down more than 15 days by strikes in the first half of 1950, to adjust their base period.

Amendments to Previous Orders

Amendment to M-1 increases amounts of **steel** of designated types to be set aside to fill DO orders.

Amendment to M-3 restricts **columbium** and **tantalum** going into steel to orders bearing DO rating or NPA directives.

Amendment to M-5 increases **aluminum** set aside to meet DO orders 15% for producers and 20% for distributors and jobbers.

Amendment to M-6 fixes **carbon steel** products for distribution through warehouses at 85% of base period receipts by warehouses.

Amendment to M-17 orders manufacturers of **rigid electrical conduits** to accept DO orders up to 25% of monthly output.

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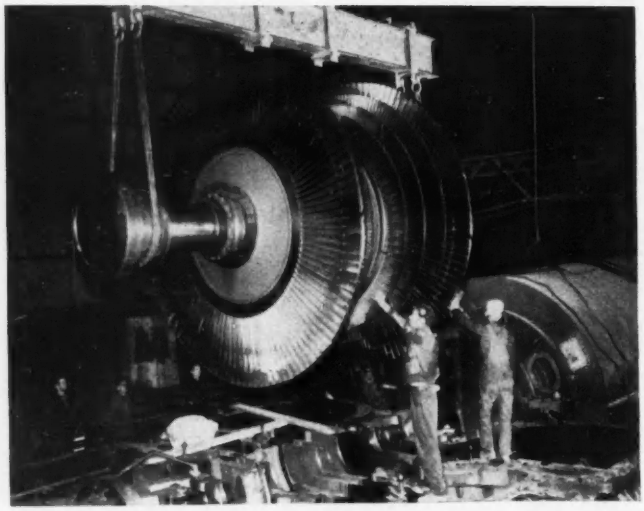
DPA Sets Up Electronics Industry Control Board

An electronics control board has been established by DPA chief, William H. Harrison. The board will determine the raw materials needs of the industry and will recommend allocation of finished products. It will recommend policies for expanding output, conserving materials, and standardizing products.

If Harrison backs up his board's recommendations, it will boss the industry that has become the toughest one for the planners to handle. Demand for electronic products has soared. The board was established in answer to a complaint from the military that deliveries were lagging and that rearmament was thereby slowed.



TURBINE ROTOR being swung in position at the new Tanners Creek Plant of American Gas & Electric System at Lawrenceburg, Ind. The 31-ton rotor is being installed in first of two 150,000-kw generating units to be housed in the plant

Charles E. Wilson Gets James McGraw Medal

(*See front cover*)

Charles E. Wilson, Defense Mobilization director and former president of General Electric Co, has received the James H. McGraw Award, Medal for Cooperation for 1950. The award was presented at a private dinner in New York last Thursday.

Wilson received the award in recognition of his contribution to cooperation in the electrical industry through dynamic personal leadership and enthusiastic support of a program to bring more power to American industry. The award was voted prior to his appointment as director of the Office of Defense Mobilization.

The panel of judges who recommended Wilson for the award consisted of E. R. Acker, Central Hudson Gas & Electric Co; R. S. Edwards, Edwards & Co, Inc; E. B. Ingraham, Times Appliance Co; R. W. McChesney, Harry Alexander, Inc; and W. T. Stuart, editor, "Electrical Construction and Maintenance," New York.

Kefauver, Load Builder

Senator Kefauver's Crime Investigation Committee is credited by Consolidated Edison Co with being one of the best load builders in many years. During the recent hearings in New York Con Ed's load ran about 80,000 kw above normal. Company officials believe the increased demand was due to the fact that practically every TV set was used during hearings.

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NPA Directors Named

Bonnell W. Clark, retired Westinghouse Electric Corp vice president, is scheduled to become director of the National Production Authority's Electrical Division when the new division is established under the Controlled Materials Plan (EW, March 26, p 89). Charles F. Kells, director of the present Power Equipment Division, will become director of the Engine and Turbine Division, which will supplant PED.

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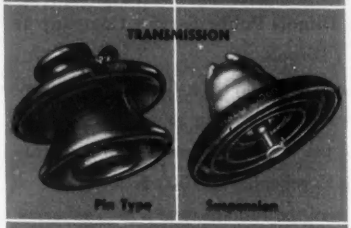
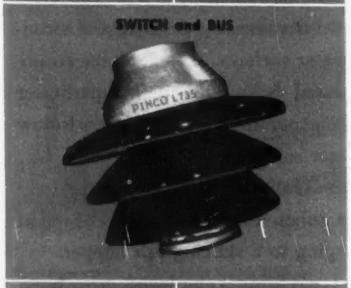
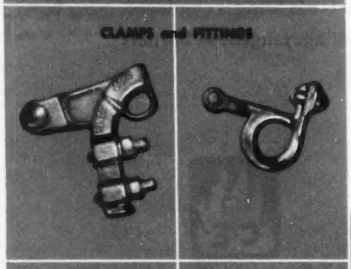
Ballasts in Short Supply

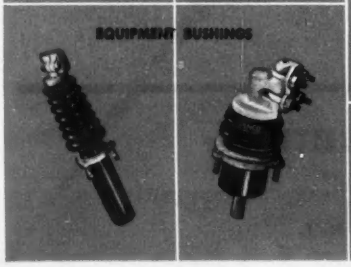
A shortage of ballasts for fluorescent lights can be solved with more silicon steel, copper, and aluminum foil, the industry has told the National Production Authority. NPA suggested classifying silicon steels into three types and establishing alloy percentages according to end use.

PINCO
INSULATORS









Everyone knows how Pinco Wet Plastic Process Porcelain gives Pinco 2- and 3-part Pin Types unexcelled insulating qualities . . . how Pinco design provides husky sections and beaded edges to eliminate mechanical failure. But it's the built-in features (exclusive manufacturing techniques) not apparent to the eye in the completed unit, that provide those "plus" values so essential to RIGHT ON THE JOB performance.

What are some of these "plus" values? . . .

1. Pinco resilient compounds, applied to the porcelain surfaces in contact with cement, completely relieve the effects of thermal expansion at any temperature encountered in service.
2. Pinco cementing processes involve laboratory-controlled mixing techniques, and curing in special rooms where temperature and humidity are rigidly regulated.
3. Porcelain sand grains are of uniform size and are applied in belts of even thickness and width.

These are some of the reasons why "right-on-the job" specifiers and buyers are selecting Pinco Multi-Part, High Voltage Pin Types to insure RIGHT ON THE JOB performance.

See page 38, Pinco Catalog No. 49
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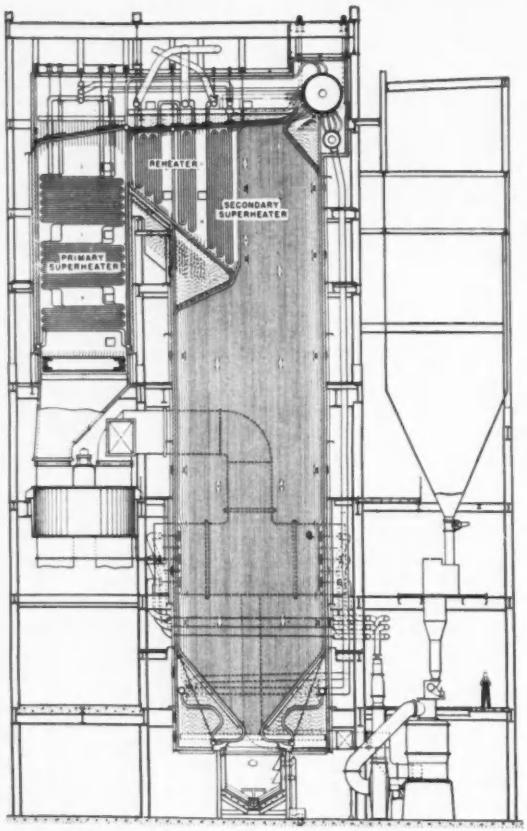
C-E REHEAT BOILERS

HUTSONVILLE STATION

CENTRAL ILLINOIS PUBLIC SERVICE COMPANY



THE C-E Unit illustrated here is now in process of fabrication for the Hutsonville Station of the Central Illinois Public Service Company at Hutsonville, Illinois.

It is designed to serve a 60,000/75,000-kw turbine-generator operating at a throttle pressure of 1450 psi with a primary steam temperature of 1000 F, reheated to 1000 F.

The unit is of the radiant type with a reheater section located between the primary and secondary superheater surfaces. A finned tube economizer is located below the rear superheater section, and regenerative type air heaters follow the economizer surface.

The furnace is fully water cooled, using closely spaced plain tubes. It is of the basket-bottom type, discharging to a sluicing ash hopper.

Pulverized coal firing is employed, using bowl mills and tilting, tangential burners. B-476

C-E

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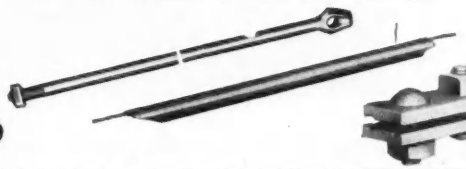
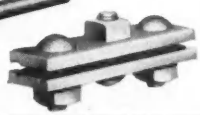


Steel Single Strand Eye Anchor Rod



Steel Guy Wire Protector

Guy Clamp with Torkol-treated Nuts

Angle Single Strand Eye Bolt

Galvanized Steel Lift Plate

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25-R

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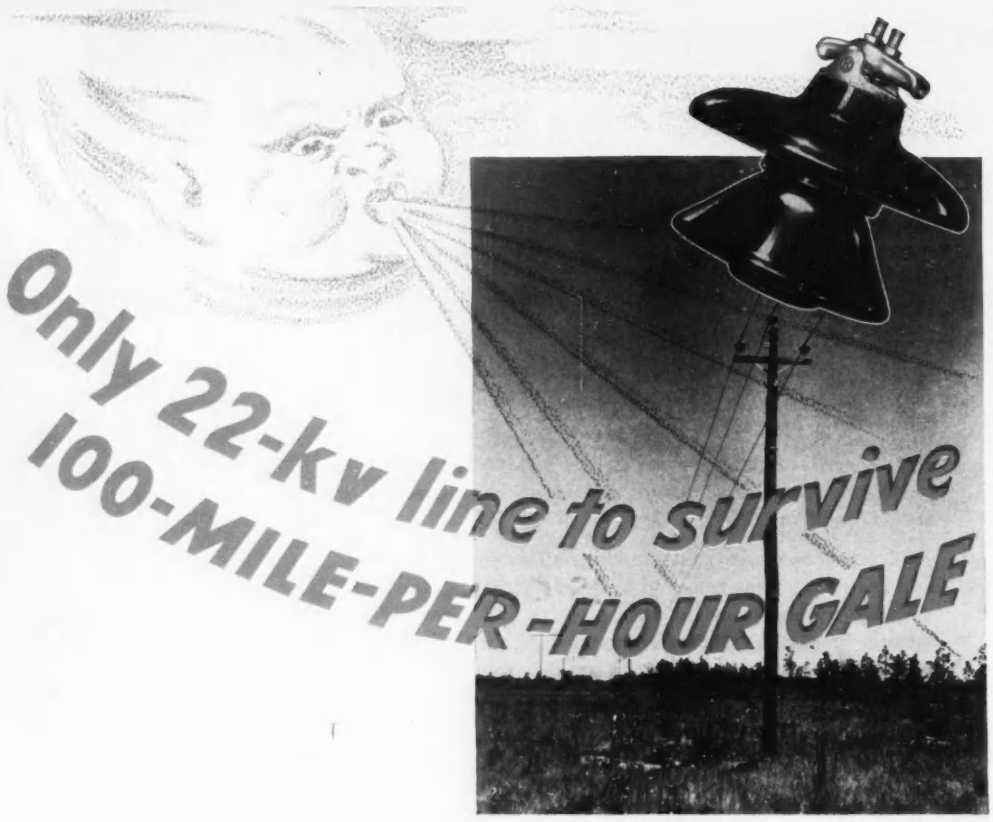
Line Construction Materials



. . . THANKS TO O-B CLAMPTOPS

● First in the Gulf Coast region to be built with O-B Clamptop insulators in 1938, this 22-kv line sustained the famous 1947 Hurricane with its 100-mile-per-hour winds and was the only line in the district that stayed energized and survived the storm completely undamaged.

Credit for this performance goes, in no small part, to the secure conductor grip provided by O-B Clamptops. By eliminating tie wire failure or slippage, common in hurricanes, supporting poles have only the strain of the wind to resist since the conductor is anchored against movement that would add unbalanced loading to already severe strains. Each span on this line had no more than its own job to do, since it was mechanically segregated.

You may not have hurricanes in your own territory, although high winds are always a hazard. But, similar loads may be imposed by ice or falling objects. Actually, this Gulf Coast experience, in one form or another, strikes home to every power engineer.

When you add the exceptional holding power of O-B Clamptops to such other advantages as major construction savings, safest hot stick handling, and lowest radio interference, you will have a reason for ordering a supply now. From here on, they'll "write their own ticket" on your system.

Ohio Brass

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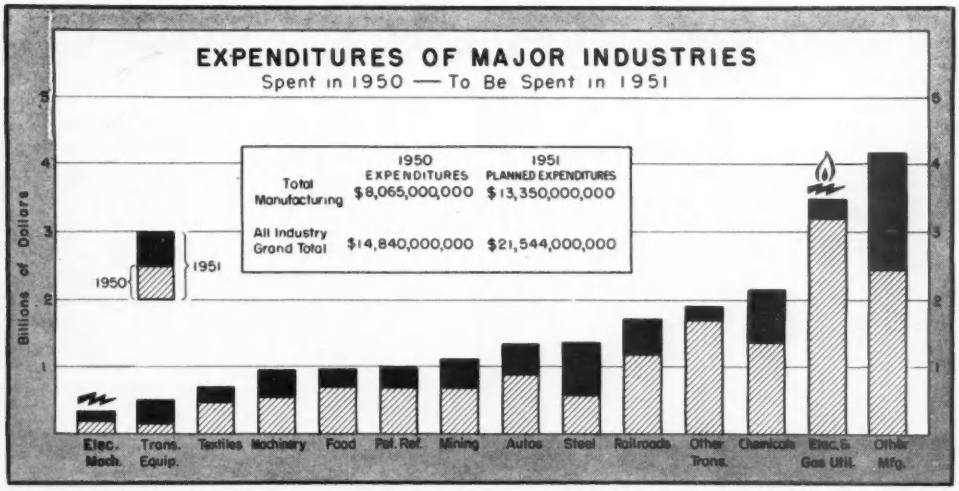


Industry's Expansion Goal—$21.5 Billion

McGraw-Hill Survey Reveals Business Aims to Construct Plants and Equipment at Record Rate in 1951; Electric Utilities Will Profit

If the future American industry has planned becomes a reality, electrical utilities can look forward to continued prosperity for the next few years. Manufacturing industries want to spend $13.3 billion in 1951 for new plants and equipment (See chart above). This is 66% more than they invested in 1950, and by far the largest expenditure ever planned for one year. All industry—the utilities themselves, transportation, communication, and mining as well as manufacturing—would like to spend $21.5 billion in 1951. This is 45% more than was invested in 1950.

All this is good news for electric utilities. It means that:

1. Large industrial power sales, which were 139,065,210,000 kwhr in 1950, 15.2% above 1949, will continue to rise in 1951.

2. Industrial power sales will jump sharply in 1952 when the new manufacturing plants go into operation.

3. Prosperity will continue. So residential customers will have money to buy more appliances, rewire their homes, and use a lot of electricity.

4. Commercial sales also will increase, and merchants will have money to relight their stores.

5. The many new power plants going on the line this year will have a ready market for their output.

The spending plans of industry were revealed by the fourth annual McGraw-Hill survey of business' plans for new plants and equipment. These surveys, prepared by McG-H's Department of Economics each year, provide the first direct measures of the growth of American industrial facilities. The companies surveyed generally are the larger ones in their industries. Results are extended to provide a picture of each industry. Previous surveys showed this procedure to be extremely accurate.

This year, however, inflation and industry mobilization have entered the picture. Prices of capital goods are at least 10% higher than they were a year ago. Industry mobilization has caused some companies to speed construction in order to handle mobilization orders. Others are pushing construction for fear that this will be their last opportunity to do so before they are stopped by government controls. Plans for 1951 reflect this thinking.

There is no guarantee that industry will be able to spend all it desires. Later in the year material shortages or government controls may intervene. But it is a safe bet that much of the delayed construction will be completed in 1952 and not cancelled.

Here are the major findings of the survey:

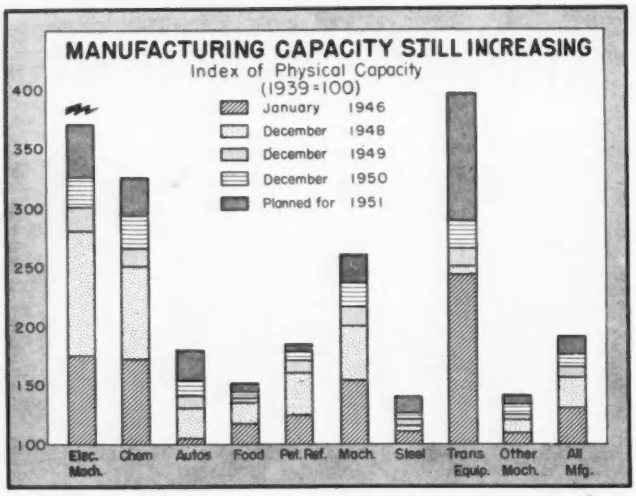
1. Manufacturing industries plan to expand their facilities 9% in 1951. Defense industries will expand most. One of these is transportation which is dominated by the aircraft industry. Others are steel, chemicals, and general machinery.

2. Manufacturing industries have raised their capacity an average of 75% since 1939 (See chart). Electrical machinery industry has tripled its facilities.

3. With $21.5-billion expenditures planned for all industry greatest single increase is in transportation equipment. This means the aircraft industry. Non-ferrous metals show an increase of 175% over 1950. The industry is driving to meet mobilization's need for these metals.

4. Expansion and not modernization will get most of the investment dollar, 58¢ against 43¢ in 1950.

5. New facilities will be financed by the industries themselves. In manu-



facturing 98% will be, and the biggest share, 86%, will come from profits and reserves. Aircraft is the only major industry which plans to finance any appreciable share of its new facilities through government loans.

The electric and gas utilities which are combined in the survey show little increase, 9%, over their 1950 expenditures in their plans for 1951. Both have been spending at high levels for a number of years. In 1951 they will spend ("will" is correct for these industries which apparently will get priority for materials because of their importance to defense) over $3 billion for the third year in a row. This is the largest capital spending program of any single industry.

The boom in industrial building which developed in 1950 promises to continue at a high level. In the manufacturing industries, at least, business plans to spend 79% more on construction in 1951 than in 1950. Since total expenditures are to rise only 66%, a larger share of the investment dollar will go into new buildings.

For electric utilities this is important. Many of these new buildings will be entirely new plants. And many will be in sections of the country and on the lines of utilities where the industrial load now is light.

•

Named Commission Head

Commissioner Wilson T. Wright has been elected chairman of Arizona's Corporation Commission.

Power Authority Gets Jurisdiction of Niagara

The New York State Legislature has passed a bill extending the jurisdiction of the State Power Authority to include the Niagara River and Falls in addition to the St. Lawrence River.

Governor Dewey called the bill a display of good faith on the part of the state in the development of public power possibilities there, and asked for a like display on the part of the federal government.

"Because the plans of the New York administration have been blocked by the Federal Power Commission," he said, "we in this state must use power developed from coal at ever increasing cost. We must do without the far cheaper power which nature intended for us and which development could easily make available to us."

Replying to charges that the state intends to monopolize all power developed by the Niagara and St. Lawrence Rivers, Dewey said the bill expressly authorizes the State Power Authority to allocate any "reasonable" amounts of power to neighboring states.

•

To Double Plant Capacity

Greenidge Station at Dresden on Lake Seneca has been selected as the site of New York State Electric & Gas Corp's new 100,000-kw generating unit. Installation of the unit will more than double the plant's capacity.

WSB Approval Sought for UWU Pay Increases

Two 10% wage increases negotiated by CIO Utility Workers Union of America in California have been submitted to the Wage Stabilization Board for approval because in some particulars they go beyond the 10% wage formula ceiling.

The 10% increase obtained from Southern California Edison Co for 1,000 steam production employees at Redondo Beach and Long Beach plants, retroactive to Jan. 1, must be approved because the new one-year contract also provides for a minimum increase of 16¢ an hour. Employees earning less than $1.60 an hour will get more than 10%. This brings the average increase to slightly more than the 10% ceiling.

The 10% increase obtained for 3,200 employees of Southern California Gas Co must get WSB approval because it is retroactive to Dec. 1. Approval is required for retroactive increases which go back beyond the expiration date of the old contract.

•

Renews Power Contract; Buys Municipal System

Under terms of two separate agreements, Niagara-Mohawk Power Corp, Syracuse, will buy surplus power from two hydro plants operated by the State of New York and will incorporate a municipal distribution system into its own.

In the first agreement, Niagara-Mohawk has been granted a new contract to buy for 25 years the surplus output of the 5,600-kw Vischer Ferry and Crescent hydro plants on the New York State Barge Canal. Niagara-Mohawk will pay an estimated $321,328 annually, at the rate of $1.17 per kw of capability per month, plus 2.37 mills per kwhr of securable energy. Power will be delivered over existing transmission lines.

Under the second arrangement, the Public Service Commission has approved purchase of the Oswegatchie Light & Power Co (Gouverneur, N. Y.) distribution system for $515,000 by Niagara-Mohawk. According to Commissioner Spencer B. Eddy, the transfer will result in improved service and will reduce rates by about $3,000 a year.

WORLD'S LARGEST SUBMARINE CABLE is "christened" by Miss Julia D. Debiak of the Okonite Co. Looking on are VP E. J. Wiseman; Paterson Plant Supt I. Branthwaite; Pres A. F. Metz; VP E.D. Youmans; and Passaic Plant Supt M. W. Rounds

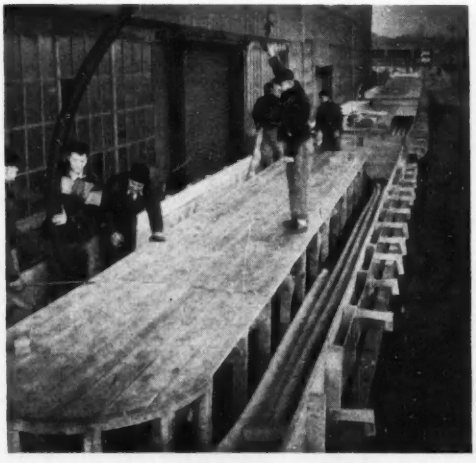
7½-Mile Length of Submarine Cable Will Supply 2 Puget Sound Islands

The largest single length of high-voltage submarine cable ever built is on its way across the country to Puget Sound in a solidly-linked chain of nine railroad cars. The 7½-mile cable is being shipped from the Paterson, N. J., Plant of Okonite Co, where it was manufactured, to Renton, Wash., where it will be laid by Bonneville Power Administration to supply two islands in the Sound's San Juan group.

Rated at 25 kv and capable of carrying 20,000 kva, the rubber-insulated, steel-armored cable contains three conductors, each 300,000 circ mil in area. It is 4½ in. in diameter.

The cable is scheduled to arrive at Renton early next week. There part of it will be laid from Fidalgo Head, near Anacortes, Wash., across an arm of Puget Sound to Decatur Island and a second stretch from Decatur to Lopez Island. The stretch from the mainland to Decatur is more than 27,000 ft and that from Decatur to Lopez, 11,000.

The new links will take power from the BPA system and deliver it to Orcas Power & Light Co, which serves the islands. At present the Orcas company



SPECIAL TRAIN of nine gondolas receives 7½-mile, ¾-million-lb cable for its cross-country journey to Puget Sound

TREE BRANCH signifies job's completion. It is mounted on one of the arches which carried the cable from car to car

SEATTLE PROPERTIES of Puget Sound Power & Light Co are transferred to Seattle City Light as Frank McLaughlin, Puget Sound president, third from left, receives $25,850,000-check from H. L. Collier, city treasurer. Also in photograph, from left to right, are E. R. Hoffman, City Light superintendent; W. C. Thomas, city comptroller; Mrs. J. D. Ross, widow of long-time City Light superintendent who first proposed purchase; Mayor William F. Devin, and E. L. Skeel, an attorney

runs only a few low-capacity oil engine generating plants. The cable will bring firm power from the mainland and allow the island to make a stronger bid to attract new industries, tourists, and home owners.

Preparing the length for shipment was no small task. It weighs 750,000 lb —about 19 lb a foot. For rail shipment it had to be coiled around large wooden cores in nine gondolas with a vertical loop carried over from car to car (See picture at right, p 13). Pins were welded in place in the couplings and sets of welded chain—one on each side of the coupling—were installed to make doubly sure the cars wouldn't be uncoupled and the cable damaged.

Cost of laying the $500,000 cable will be about $100,000. The job is scheduled to be finished by May 1. Orcas expects power to flow by July 1. To lay the cable, BPA will borrow and man Puget Sound Power & Light Co's new cable laying boat. The 27,000-ft length from Fidalgo Head to Decatur Island will be laid in about four hours, and the cable cut. Then the boat will sail half way around Decatur and lay the 11,000-ft section in about two hours. The cable had to be in a single continuous length because it would be impracticable to stop laying operations in the middle of Puget Sound and spend several hours making a complicated splice.

•

Franchise Is Granted

Manhattan, Kan., has granted Kansas Power & Light Co a 20-year electric franchise.

Utility Energy Production Sets Records in January

Production of energy by electric utilities set new monthly and yearly records in January, the Federal Power Commission reports.

The month's output of 31,417,782,000 kwhr is the highest monthly production on record, 2.6% above the previous record of December, 1950. For the year ended Jan. 31, production totaled 333,544,355,000 kwhr, 1.4% higher than the previous maximum for a 12-month period set during the period ended Dec. 31, 1950, and 14.1% more than production during the year ended Jan. 31, 1950.

Water power plants produced a record 8,878,885,000 kwhr in January, a rise of 6.5% from January, 1950. As a percentage of January total production hydro output decreased from 31% last year to 28.3% this year. Fuel plants produced 22,538,897,000 kwhr in January.

•

2 Midwest Companies Seek Hydro Licenses

Two Midwest power companies have filed applications with the Federal Power Commission for licenses to build hydroelectric projects. Wisconsin Michigan Power Co, Appleton, Wis., plans three projects in Iron County, Mich., one on the Paint River and two on Michigamme River. Citizens Power Co, Lincoln, Neb., plans another on the Platte River near South Bend.

The new Wisconsin Michigan plants on the Michigamme will include power houses of 9,600-kw and 2,800-kw capacity, respectively. The plant on the Paint will include a powerhouse with a small house unit.

The Platte installation will include a dam 3,640 ft long and a powerhouse with a total capacity of 27,000 kw.

•

George F. Gant Leaves TVA to Take New Post

George F. Gant has resigned his $14,000 a year post as general manager of Tennessee Valley Authority to take a $12,000 job developing graduate courses in Southeastern universities. John Oliver, chief budget officer and assistant general manager, was named acting general manager.

Gant, who was with TVA 16 years, was appointed general manager in 1946 to succeed Gordon Clapp. He was appointed to his new post by the Board of Control for Southern Regional Education in Atlanta. Oliver joined TVA in 1942 as assistant budget officer.

•

WWP Asks Hydro Permit

Washington Water Power Co, center of a major private-public power scrap over its future ownership, has applied to the Federal Power Commission for a preliminary permit for a hydroelectric project in Montana. The permit is asked for a site on the Clark Fork River in Sanders County. The project would include a powerhouse with a rated capacity of 197,000 hp and a reservoir 17 miles long.

Life Insurance
for line-type arresters

WE'VE MADE THEM LAST LONGER
WITH THESE L-M FEATURES

***Capacitance type spark gap** maintains consistently low sparkover*

Accurately shaped heavy alloy disc electrodes help assure uniform sparkover. These discs are separated by special ceramic spacers with silvered faces. These form a simple, effective voltage divider of the capacitance type which maintains uniform voltage distribution in the gap and protects it from stray electrical fields and the effect of snow or water on the housing. The ceramic spacers have a dielectric constant about 400 times that of the usual ceramic spacers. Dividing the gap into two short, sturdy sections at top and bottom of the arrester increases mechanical strength.

***Lens-shaped electrodes** lengthen life of characteristic element*

Like alternating current in a conductor, lightning surge current tends to "skin" down the outside of the arrester valve element. This "skin effect" characteristic lowers the surge capacity of ordinary arresters because only a small portion of the valve element cross-section area is used to handle lightning current. However, in L-M's Line Type Arresters, lens-shaped metallic electrodes shorten the electrical distance down the center of the valve element just enough to counteract the skin effect. The surge discharges evenly all through the valve element—and the arrester lasts far longer. The arrester can take *more* heavy surges . . . it maintains its high discharge capacity without change for years and years.

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Complete Coordinated Equipment for Distribution Today

L-M type DL Line Type Arresters are available in 8 sizes from 20 to 73 kv, are heavily built, have many features to assure adequate protection with unchanging characteristics for a long, long time. Get Bulletin LA4; it gives you the whole story. Ask your L-M Field Engineer for a copy, or write Line Material Company, Milwaukee 1, Wisconsin (a McGraw Electric Company Division).

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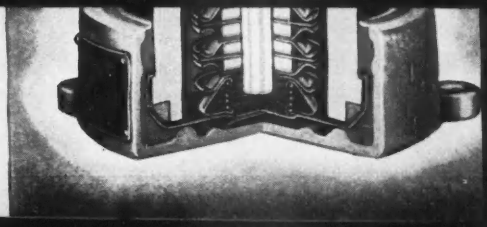


JOSEPH M. BELL, JR, company president, greets Binghamton teachers on visit

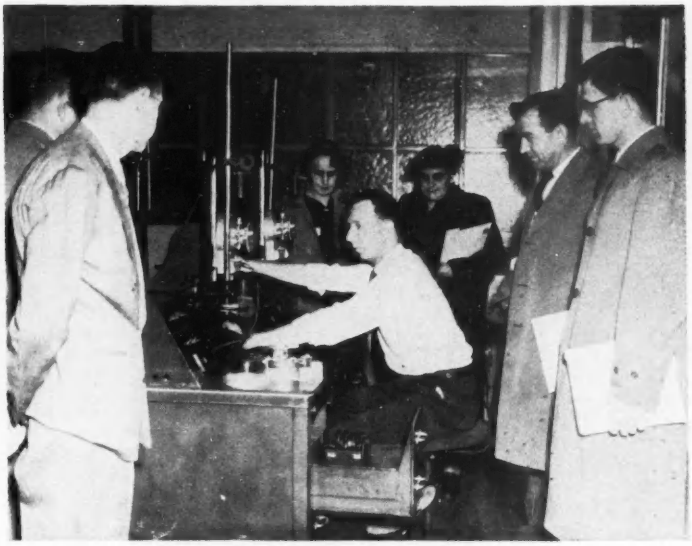
GOUDEY STATION works like this, Robe

Teachers Add 'E' for 'Electricity' to 3 R's On New York Electric & Gas Corp Tour

TURBINE BOARD at Goudey is more fascinating than a blackboard to these teachers

TEACHERS LOOK to see if their names

Hobart, system engineer, tells the group

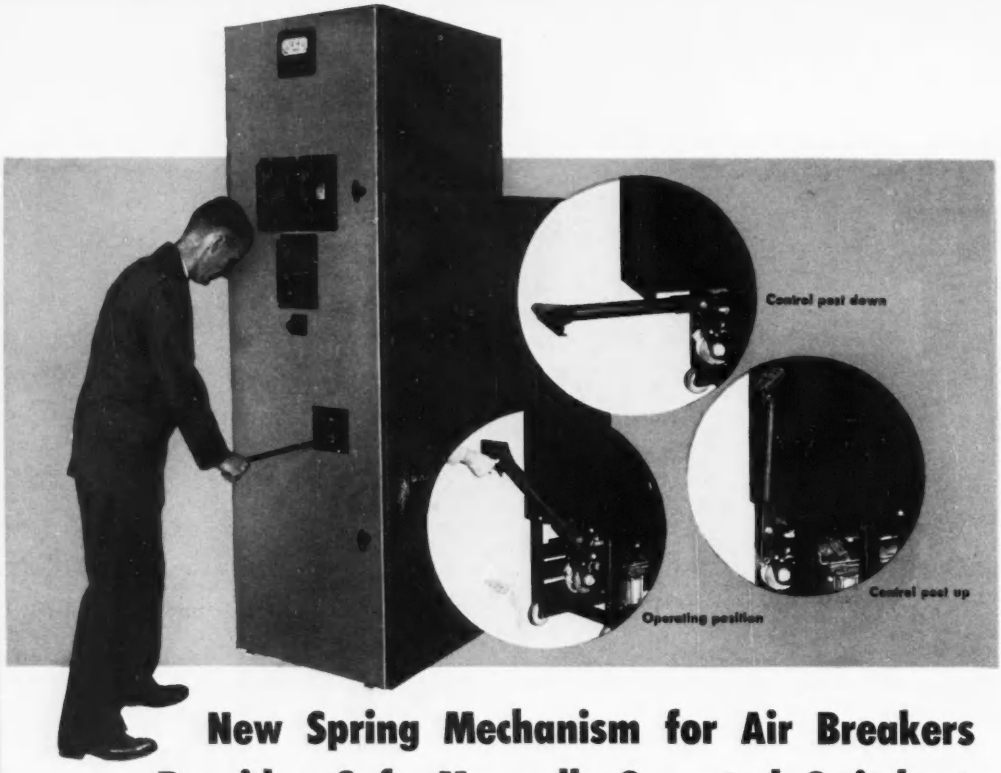


METER TESTER shows instructors how he makes sure units in system are accurate

Business-Industry-Education Day in Binghamton recently brought out 50 public school teachers for a tour of the Binghamton Division of New York State Electric & Gas Corp. Kids in the city got a day off so their 640 teachers could visit 32 industries and business places and nine public service organizations under sponsorship of the local Chamber of Commerce. Idea was to give the teachers an inside picture of business and industry at work, to supplement textbook theory. The delegation was greeted at the company's main offices by Pres Joseph M. Bell, Jr. They heard talks by other company officials and were taken on a guided tour of administrative and operating offices and the Goudey generating station.

bills being made out in billing center

MODEL KITCHEN on display floor takes the eye of female members of the contingent



New Spring Mechanism for Air Breakers Provides Safe Manually-Operated Switchgear

Manual closing is ideal for primary service circuit breakers serving office buildings, stores or small industrial users where operation is infrequent and electric closing power is not available.

The new Westinghouse spring-operated mechanism for hand-closing type DH "De-ion"® Air Circuit Breakers makes manual operation safe. This spring-operated closing mechanism is loaded by hand through a mechanical linkage. When the compressed spring is released by means of the pushbutton, it closes the breaker with sufficient speed and force to overcome magnetic effects of short-circuit currents.

The breaker can be closed and tripped with the housing door closed. At the same time, the operator has a visual indication of the breaker status. Your maintenance men can also close and open the breaker slowly by hand for inspection purposes. The control post can be lowered to permit installation or removal of the main barrier, or raised to permit the housing door to be closed with breaker in test position.

The spring-closed DH Air Breaker is supplied with a metal-clad switchgear housing of standard dimensions and having a panel suitable to its application.

This new mechanism is designed for a maximum breaker momentary current rating of 60,000 amperes. For complete details, see your nearest Westinghouse representative or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania.

★ ★ ★

See "Electrical Proving Ground" . . . the dramatic story of the Westinghouse High-Power Laboratory, in sound and color motion picture. For details, write Westinghouse Film Division, Box 868, Pittsburgh 30, Pennsylvania. J-60746

YOU CAN BE SURE.. IF IT'S
Westinghouse
METAL-CLAD
SWITCHGEAR

MEETINGS

Edison Electric Institute
Annual Sales Conference, Edgewater Beach Hotel, Chicago, April 2-5; Transportation Committee, jointly with American Gas Association Motor Vehicle Committee, Peabody Hotel, Memphis, Tenn., April 16-18; Purchasing and Stores Committee Annual Conference, Lord Baltimore Hotel, Baltimore, Md., April 30-May 2; Transmission and Distribution Committee, Edgewater Beach Hotel, Chicago, May 1-2; Meter and Service Committee, jointly with Association of Edison Illuminating Companies' Committee on Metering and Service Methods, Huntington Hotel, Pasadena, Calif., May 7-9; Commercial Electric Cooking Conference, Sheraton Hotel, Chicago, Ill., May 9; EEI Accident Prevention Committee, Hotel Utah, Salt Lake City, Utah, May 21-22; Electrical Equipment Committee, Hotel Biltmore, Los Angeles, Calif., May 28-29; Annual Convention, Shirley Savoy Hotel, Cosmopolitan Hotel, Denver, Colo., June 4-7.

American Society of Mechanical Engineers
Spring Meeting, Atlanta Biltmore Hotel, Atlanta, Ga., April 2-5; Semi-Annual Meeting, Royal York Hotel, Toronto, Canada, June 11-15.

Electric Association of Chicago
Industrial Electrical Exposition, Sherman Hotel, Chicago, Ill., April 3-6.

Midwest Power Conference
Sherman Hotel, Chicago, April 4-6.

Missouri Valley Electric Association
Engineering Conference, President Hotel, Kansas City, Mo., April 4-6; Accounting Conference, President Hotel, Kansas City, Mo., May 17-18.

Illuminating Engineering Society
Southern Regional Conference, Atlantis Hotel, Miami Beach, Fla., April 9-10.

Indiana Electric Association
Young Men's Utility Conference, Ipalco Hall, Indianapolis, April 10-11.

Southeastern Electric Exchange
Annual Conference, Boca Raton, Fla., April 11-13.

American Institute of Electric Engineers
District No. 4 Meeting, McFadden-Deauville Hotel Miami, Fla., April 11-13; District No. 1 Meeting, Hotel Syracuse, Syracuse, N. Y., May 2-4; District No. 5 Meeting, Loraine Hotel, Madison, Wis., May 17-19; Summer General Meeting, Royal York Hotel, Toronto, Canada, June 25-29.

Northwest Public Power Association
Annual Convention, Cascadian Hotel, Wenatchee, Wash., April 12-14.

Rocky Mountain Electrical League
Annual Spring Conference, Shirley Savoy Hotel, Denver, Colo., April 15-18.

Michigan Municipal Utilities Association
Spring Meeting, Wenonah Hotel, Bay City, Mich., April 19-20.

Northwest Electric Light & Power Association
Engineering Section, Hotel Utah, Salt Lake City, Utah, April 25-27; Business Development Section, Multnomah Hotel, Portland, Ore., May 7-9; Personnel Section, Davenport Hotel, Spokane, Wash., May 16-18.

Pennsylvania Electric Association
Communications Committee, Bedford Springs Hotel, Bedford, Pa., May 3-4; Joint Meeting of Electrical Equipment, Transmission and Distribution Committees, Abraham Lincoln Hotel, Reading, Pa., May 10-11.

New Jersey Utilities Association
Spring Meeting, Seaview Country Club, Absecon, N. J., May 4.

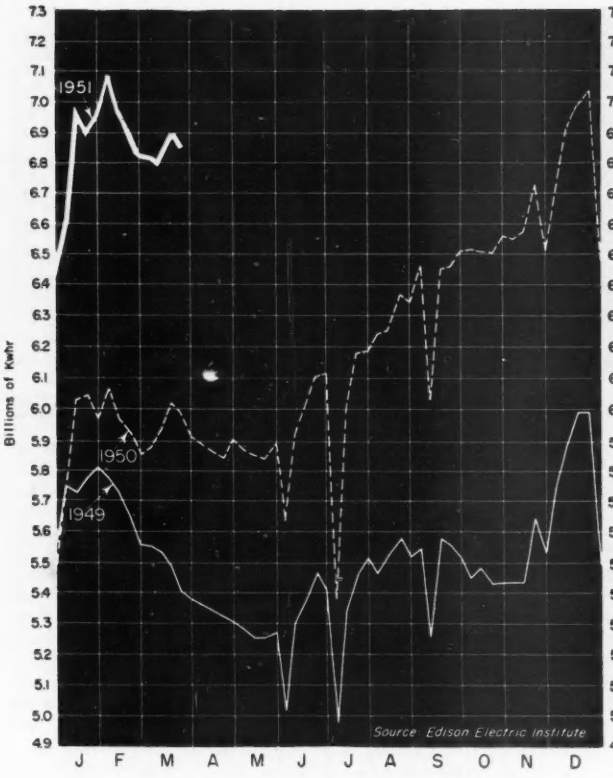
American Public Power Association
Annual Convention, Read House, Chattanooga, Tenn., May 7-9.

New York Society of Professional Engineers
Engineering Industries Exposition, Hotel Statler, New York, May 10-12.

Public Utilities Advertising Association
Annual Meeting, Hotel New Yorker, New York, May 17-19.

Protective Relay Engineers
Annual Conference, Georgia Institute of Technology, Atlanta, Ga., May 18-19.

Missouri Association of Public Utilities
Annual Convention, Jefferson Hotel, St. Louis, Mo., May 21-23.



Output Week Ended March 24—6,847,786,000 Kwhr

Weekly Output, Millions Kwhr

1951	1950	1949
Mar 24 6,848	Mar 25 5,993	Mar 26 5,404
Mar 17 6,903	Mar 18 6,015	Mar 19 5,496
Mar 10 6,795	Mar 11 5,937	Mar 12 5,531
Mar 3 6,822	Mar 4 5,879	Mar 5 5,552
Feb 24 6,833	Feb 25 5,854	Feb 26 5,559
Feb 17 6,905	Feb 18 5,931	Feb 19 5,650
Feb 10 6,957	Feb 11 5,971	Feb 12 5,722
Feb 3 7,099	Feb 4 6,062	Feb 5 5,778
Jan 27 6,970	Jan 28 5,972	Jan 29 5,810
Jan 20 6,909	Jan 21 6,041	Jan 22 5,769

Percent Change from Previous Year

	Mar 24	Mar 17	Mar 10
New England	+12.3	+13.8	+10.5
Mid-Atlantic	+11.7	+13.0	+12.2
Central Industrial	+15.2	+16.8	+15.9
West Central	+13.5	+13.3	+14.1
Southeast	+17.1	+16.3	+12.5
South Central	+21.4	+21.1	+23.7
Rocky Mountain	+ 8.9	+ 8.5	+10.6
Pacific Coast	+13.4	+11.8	+16.2
Total United States	+14.3	+14.8	+14.5

Pacific Coast Electrical Association
Annual Convention, Biltmore Hotel, Los Angeles, Calif., May 21-23.

Canadian Electrical Association
Annual Convention, Algonquin Hotel, St. Andrews, New Brunswick, June 18-20.

American Society for Testing Materials
Annual Meeting, Chalfonte-Haddon Hall, Atlantic City, N. J., June 18-22.

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To Install 68,000-Kw Unit

Indianapolis Power & Light Co plans to install a fifth generating unit at its new White River Plant, Centerton, Ind. A 68,000-kw turbo-generator has been ordered for delivery in August 1953. It is scheduled to go into service in December of that year.

Raises Wages $3 Million

The TVA-Tennessee Valley Trades and Labor Council has granted wage increases covering about 8,000 employees of the Tennessee Valley Authority and totaling $3 million a year. The increases apply to nearly all classifications and employees covered by the trades and labor wage schedules.

•

Wage Increases Granted

Wage increases have been given to 288 employees of the Tucson Gas, Electric Light & Power Co. Increases range from $4.25 to $23 a month.

YIELDS (%) — Operating Electric Utility Securities

Quality	Bonds			Preferred Stocks			Common Stocks		
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
DATE									
1951									
Mar. 22	2.83	2.88	2.95	3.93	4.13	4.49	5.41	6.16	7.04
Mar. 15	2.84	2.87	2.93	3.89	4.09	4.49	5.45	6.20	7.06
END OF QTR.									
4th 1950	2.65	2.67	2.78	3.86	4.14	4.51	5.80	6.54	7.44
3rd 1950	2.66	2.67	2.76	3.81	4.08	4.46	5.70	6.54	7.25
2nd 1950	2.68	2.66	2.74	3.79	4.03	4.38	5.38	6.51	7.50
1st 1950	2.59	2.61	2.74	3.78	4.01	4.36	5.22	5.85	6.67

Data: Reis & Chandler, Inc.

Eastern Utilities Associates Files Plan for Reorganization with SEC

Eastern Utilities Associates, Boston, has submitted to the Securities and Exchange Commission a reorganization plan to substitute a single operating-holding company for its present holding company system. Under the proposal the operating-holding company would have authority to acquire the properties and business of EUA's subsidiaries—Brockton Edison Co, Fall River Electric Light Co, and Montaup Electric Co—and all of the securities of another subsidiary, Blackstone Valley Gas & Electric Co.

The new company, Eastern Edison Electric Co, Inc, was organized on Feb. 16, and steps have been taken to change its name to Eastern Edison Co. It will register as a holding company.

Twenty-eight million dollars of bonds, and $12.5 million of preferred stock will be issued by the new company and sold to the public. The company also will obtain a $3.5 million bank loan for new construction.

Bank loans of Brockton, Montaup, and EUA will be paid off, and all outstanding bonds of Brockton and Fall River and existing bonds and preferred stock of Blackstone will be redeemed. Minority holders of Blackstone common will be offered $110 per share by EUA. All minority interests will be eliminated by the distribution to minority stockholders of the number of shares of the new company common as listed below in exchange for each share of subsidiary stock held by them: Fall River capital stock, 2.9 shares; Fall River employees' stock, 1.2 shares; Brockton capital stock, 2.4 shares; and Blackstone common stock (not tendered to EUA), 5.2 shares.

EUA will hold the balance of the new company's 1.5 million shares of comon stock for distribution to its common and convertible shareholders "on the basis that the amount of new company common stock received by each Eastern Utilities Association common share will be 3½ times the amount of new company common stock received by each convertible share.

"The exact number of new company common shares that EUA will have available for distribution to each common and convertible share of EUA cannot be determined until it is known how many stockholders of Blackstone will elect to take cash instead new company common stock." Thereafter, EUA's remaining assets will be transferred to the new company and EUA will be terminated.

EUA owns 99.2% of Blackstone stock, 97.4% of Brockton stock, and 98.5% of Fall River stock. The three subsidiaries own all of the outstanding preferred and common stocks of Montaup.

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PUD's Win Round in Fight to Buy WWP Properties

Washington State PUD's have won their fight against a bill in the state legislature which would have prohibited their buying Washington Water Power Co properties within Spokane without a favorable vote in a Spokane election. Since such approval would have been extremely difficult to obtain, the bill threatened the PUD plan to acquire all Washington Water Power properties.

The Senate, which has passed the bill, backed down and accepted a PUD substitute, previously passed by the House, which gives Spokane the right to condemn within five years Spokane properties acquired by the PUD's from the company.

FINANCIAL BRIEFS

British Electric Authority has increased the cost of electricity to area electricity boards, effective April 1. The boost, which averages about 2%, is exclusive of the effect of the recent increase in coal prices. Reasons for the rate hike were a change in the basis of assessment, rising capital charges on new plant and equipment and other increased costs, and the Authority's decision to build up its statutory central reserve fund out of revenues instead of relying on contributions from area boards.

Electric Utility Financing—March 17-24

Company	Description	Amount of Offering (000)	Offering Price	Yield at Price to Public
Preferred Stocks				
Central Illinois Electric & Gas	25,000 sh 4.75% ($100 par) new money	$2,500	$100	4.75%
Pennsylvania Power	40,000 sh 4.24% ($100 par) new money	4,085	102.125	4.15
Common Stocks				
Carolina Power & Light	200,000 sh new money	6,575	32.875	6.08
Middle South Utilities	450,000 sh new money	8,156	18.125	6.62

SCHEDULED FOR FOLLOWING WEEK

Bonds—Jersey Central Power & Light, 1st mtg., 1981, new money, $1.5 million; Consumers Power, 1st mtg., 1981, $5.3 million debt retirement and new money, $40 million.

Preferred Stock—Jersey Central Power & Light, 40,000 sh ($100 par) new money, $4 million.

Common Stock—American Gas & Electric, 339,674 sh new money, $18 million; Detroit Edison, 850,000 sh new money, $17 million.

IN THE INDUSTRY

FISCHER BLACK

Fifteen years ago when the rural electrification program sponsored by REA was taking hold, a prominent industry executive, Graham Claytor, now vice president of American Gas & Electric Co, said there were three ways the utilities could handle the situation. The three methods suggested were as follows:

"1. Do nothing, by taking the attitude that the cooperative is not of our creation, and let those responsible for it stew in their own fat. I don't think anyone can convince me that such a policy is the correct one.

"2. Adopt the same attitude toward the cooperative as we do toward other wholesale or industrial customers—help them with their engineering problems, their sales of appliances, and in numerous other ways, such as sending our repair crews to help out in case of storms or other emergency; in short, show them that the utilities can be a good neighbor. I am in favor of such a policy.

"3. Make a fair service contract to operate and maintain the lines, read meters, and bill the customers; in fact, relieve them of all responsibility except the investment. This last method may be difficult to work out to begin with, but I believe eventually it can be done with satisfactory results to both the farmer and the utility and will come about as a natural result if the utilities adopt this 'good neighbor' policy."

Cooperation Brings Results

Recently we visited a number of co-ops some of which have been served by Claytor's companies for a number of years. It was very obvious that the philosophy suggested in the second proposal had been successfully applied. This was true at least to the extent that the utility is considered a good neighbor which gives good service at reasonable rates. Although it is not usual practice, the managers feel entirely free to call upon the utility for assistance in technical matters whenever the occasion arises.

Quite aside from the relations with power suppliers, there is a fundamental change taking place in the electric co-ops in this territory. Their job of expansion has now been completed except for normal growth in the territory served. The heavy-up program, including larger conductor, change to three phase, substation additions, and larger distribution transformers, is near completion.

Co-op Managers Planning Ahead

Now the managers, with considerable experience under their belts, are looking toward the future. They are thinking about the loads to be planned for. An average of 500 kwhr per customer per month is considered just around the corner. Many technical problems such as those arising from multiplicity of ties, telemetering, and circuit protection are confronting them.

On the political front they are leaning away from Washington. The philosophy of Clyde Ellis and REA supporting public power is not adhered to at the grass roots. They believe that co-ops should be allowed to build their own generating plants and transmission lines but as a matter of principle not as an adjunct to public power expansion. As long as they feel that they are being treated fairly by the power suppliers, they have no desire to build their own facilities.

It is concluded that the comments made 15 years ago are still appropriate. Assuming that the co-ops in Ohio are typical, it can be said that as their managements gain experience they will be able to handle the problems connected with their systems. But the opportunity still remains for all kinds of assistance from the power suppliers—the kind that is regularly given to an industrial customer. After this there will be many opportunities for service contracts as suggested in the third point above.

Perhaps the managers and the utility power suppliers should take a new look at their mutual problems and how they can be jointly solved.

TECHNICAL NOTES

ARCHER E. KNOWLTON

(From certain papers at recent Doble Engineering Client Conference in Boston)

High resistance bus joints have been identified by means of losses measured by an ac wattmeter in conjunction with a 200-turn toroidal transformer supplying a few hundred amperes through the bus conductors. (3-101)

High power factor of askarel-filled bushings was attributed to contamination of the askarel by an unidentified ingredient in the bushing fabrication. (4-101)

Conducting paint and "chore boys" to bond the conductor to the bushing succeeded in minimizing the corona and reducing the power factor of 15-kv wall and circuit breaker bushings. (4-201)

Insulation resistance of a 7,500-kva air-cooled generator rotor with badly damaged insulation was found to decrease from 3.8 to 1.1 megohms as the speed was increased from zero to 3,600 rpm and returned to 7 megohms as speed was decreased from 3,600 to zero. (7-201)

Cathodic protection of the pipe for pipe-type cable can be more readily verified if porcelain insulators are used in all pipe supports in manholes, as well as between the pipe and control devices and cable terminals. (8-103)

Magnesium anodes were installed 10 feet below the center of each section of pipe between manholes and between manholes and terminals to afford cathodic protection to the pipe of a pipe-type cable installation. (8-104)

Transformer (110/6.6 kv) internal phase-to-ground flashover at the terminal board, even though the oil looked clear and tested to 27 kv, resulted in the accumulation of approximately 200 lb of carbon muck found in the bottom of the tank. (6-101)

NEWS ABOUT PEOPLE

E. D. Youmans Succeeds Stevens at Okonite Co

E. D. Youmans has been appointed vice president in charge of manufacturing and research for The Okonite Co, Passaic, N. J. He succeeds D. R. Stevens, retiring as executive vice

E. D. YOUMANS

president after 30 years of managing the company's factory operations.

Youmans, who has been vice president and technical director, will remain in charge of research activities. He started with Okonite in 1913. Since then he has served on several government advisory committees and on technical committees of the National Electrical Code, the National Electrical Manufacturers Association, the American Society for Testing Materials, and the American Standards Association.

Stevens worked for Goodyear Tire & Rubber Co and Peerless Motor Car Co before joining Okonite as plant superintendent in 1921. Three years later he was made general superintendent of Okonite and Okonite-Callender Co, Inc, Paterson, N. J. He was named a vice president in 1927, works manager and a director in 1936, and executive vice president in 1949. He will continue to serve as a director.

•

Charles F. Daugherty has been named commercial-industrial manager of the Fort Wayne division of Indiana & Michigan Electric Co. He had held a similar post with the Lima division of Ohio Power Co since 1947.

Stuart P. Gillespie has been named research engineer of Connecticut Light & Power Co following the retirement of **Research Vice President E. J. Amberg.** Before World War II he was an engineer with Jersey Central Power & Light Co. After release from active naval duty he joined CL&P and soon was assigned to the research department.

•

Ruby Redford Will Edit 'Illuminating Engineering'

Ruby Redford, acting editor of "Illuminating Engineer" since August, has been named editor of the publication. She succeeds G. Ross Henninger, who resigned at that time to take a post at Iowa State College. The magazine is official journal of the Illuminating Engineering Society.

Miss Redford was formerly employed by the General Electric Lamp Department at Nela Park, Cleveland. In 1942 she joined the IES staff as office editor. When the magazine expanded in January, 1949, she was named production editor. She has served on a number of IES committees since 1937.

•

W. G. Many, advertising and sales promotion manager of Cornell-Dubilier Corp, South Plainfield, N. J., for the past 12 years, has resigned. He will conduct a public relations service handling sales and engineering catalogues, literature, house organs, publicity, advertising, and other related sales promotion activities for electronic, electrical, and photographic equipment manufacturers. Many edited the "C-D Capacitor" for Cornell-Dubilier.

Vincent M. De Melto, attorney and a part-time labor relations consultant for the city of Cleveland, has been appointed city commissioner of light and power. He succeeds George Oxer, who retired in 1949.

Southwestern PS Picks Ausman, Hodson as VP's

J. G. Ausman has been made executive vice president of Southwestern Public Service Co. New vice presi-

J. G. AUSMAN

H. O. HODSON

dent and operating manager is H. O. Hodson.

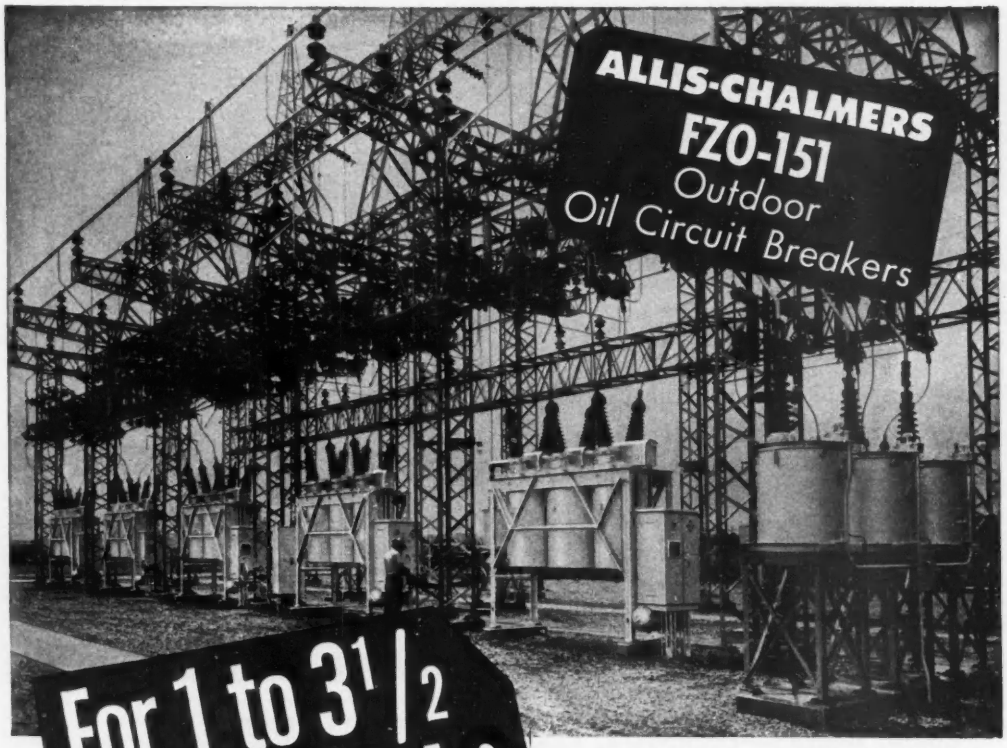
Ausman has been vice president and operating manager. He joined the utility in 1928, was made operating manager in 1944, and became a vice president in 1947.

Hodson joined the Pecos Valley division with headquarters in Roswell, N. M., in 1938. He has been chief engineer of the company since 1941.

•

Erwin S. Van Nostrand has been named manager of system planning.

(*Continued on page* 27)



For 1 to 3 1/2 Million KVA

- **MECHANICALLY TRIP-FREE PNEUMATIC OPERATOR** *assures positive tripping*
- **SINGLE-BREAK *RUPTOR* DEVICE** *(5 cycle interruption if required) for low arc energy release*
- **EVERY BREAKER** *factory assembled, tested, and shipped without dismantling.*

INSTANT, POSITIVE CONTACT OPENING under all conditions is *assured* with FZO-151 breakers. The reason is Allis-Chalmers mechanically trip-free pneumatic operator. In case of a fault, the operator is effectively uncoupled from contact mechanism by means of a positive mechanical linkage. Contacts open *independent of valve operation or cylinder back pressures* . . . there's nothing to hinder instant tripping.

Positive operation is further assured with simple, single-break *Ruptor* interrupting device that extinguishes arc without use of unnecessary moving parts that may bind or fail. Self-cleaning action of bayonet-type moving contacts prevents formation of high resistance oxides. Low inertia pole unit mechanism of straight line motion type gives high speed interruption with low arc energy release.

Complete factory test data accompanies every breaker. For details on Allis-Chalmers breakers for any utility need, contact your A-C sales office.

ALLIS-CHALMERS, 932A SO. 70 ST. MILWAUKEE, WIS.

STANDARD RATINGS (8 cycle interruption)		
Rated KV	**Rated amp. 60 cycle**	**KVA Interrupting Capacity**
69	600	1,000,000
69	1200	1,500,000
69	1200	2,500,000
69	2000	3,500,000

Ruptor is an Allis-Chalmers trademark

ALLIS-CHALMERS

GET NEW BULLETIN
71B7045 for ratings, dimensions and details of construction of type FZO-151 breakers.

A-3073

All control elements are individually pre-tested before assembly. Here a composite test of the assembled control panel is being made. A final check of the operation of the completely assembled regulator assures proper co-ordination of all components.

NOW— CLASS 1 ACCURACY

ASA Standard C57.15-1949 defines three classes of accuracy for controls:

Class 1: not over ± 1% over-all error (99% accurate)

Class 2: not over ± 2% over-all error

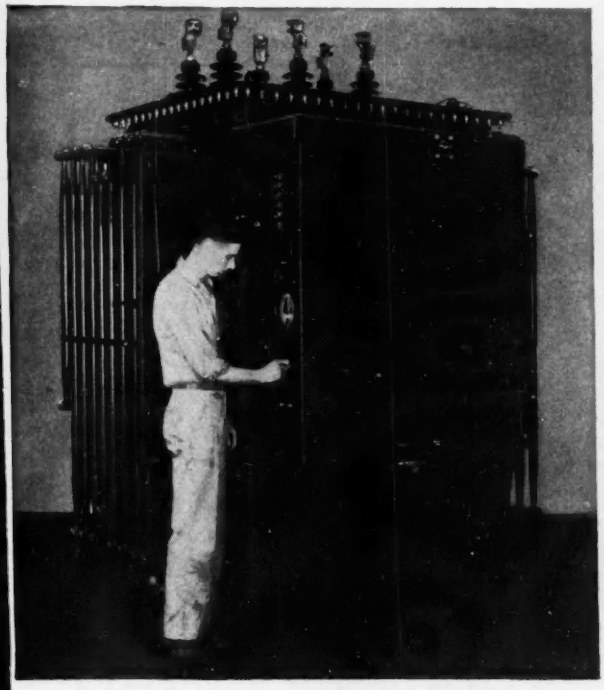
Class 5: not over ± 5% over-all error

This Standard recognizes errors arising from changes in temperature, frequency, ratio, regulator position, and load and their combined effects on the accuracy of:

1. Potential supply
2. Voltage regulating relay and associated ballast
3. Current transformers
4. Line drop compensator—resistance and reactance elements.

The maximum plus error and the maximum minus error must be determined in accordance with ASA Test Code C57.25. The largest total error, *either plus* or *minus*, determines the accuracy class of the regulator control.

The assembly of the voltage regulating relay, the "brain" of the regulator, requires skilled craftsmanship.



General Electric's three-phase 32-step Type MLT regulators are available in standard ratings for circuits up to 25,000 kva and 69,000 volts.

General Electric's Type IRS induction voltage regulators provide the finest regulation obtainable for heavily loaded, urban feeders.

IN G-E REGULATORS —AT NO EXTRA COST

This means better utilization of your feeders because they can now carry heavier loads for greater distances.

With ASA Class 1 accuracy controls on your regulators, more drop can be allowed in a regulated feeder without *at any time* exceeding established voltage limits.

These highly accurate controls meet ASA Standards for Class I devices, which call for at least 99% accuracy regardless of operating changes in temperature, frequency or load. And—they're now *standard equipment* on all General Electric station-type feeder voltage regulators. This includes induction-types IRS and IRT, as well as the step-type MLT 32.

This important new development stems from several years of research and engineering. Laboratory techniques have been adapted to factory procedures. The production of these controls demands the same brand of "know-how" that has made General Electric the leader in the field of voltage regulation for over fifty years.

For further information on how Class 1 accuracy can increase feeder capacity for you, see your G-E representative. *General Electric Co., Schenectady, N. Y.*

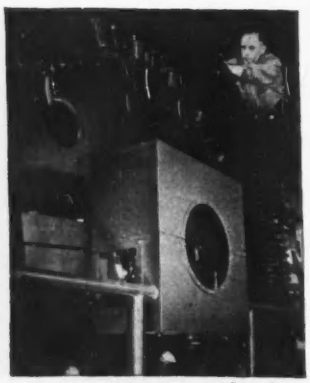
404-75

GENERAL ELECTRIC

Elliott
FABRI-STEEL
MOTORS AND GENERATORS

Another big low-speed motor by..... ELLIOTT

A large low-speed engine type synchronous motor with split rotor, for driving Ingersoll-Rand type PRE reciprocating gas compressor.



Close-up of the pressurized explosion-resisting collector ring enclosure.

This big motor is rated 2000 hp, 164-rpm, 4000 volts, 3 phase, 60 cycle, 50 C rise, 1.0 power factor. The split rotor facilitates assembly on the compressor shaft in the field. Collector rings are enclosed, adapting the unit to duty in explosive gas atmosphere.

Elliott has established a particularly strong reputation in large motors designed for specific and individual conditions, such as the one illustrated here. An exceptional degree of rigid ruggedness is gained by the famous Elliott "Fabri-Steel" construction while high performance and endurance are assured by quality workmanship throughout.

For full details write for Synchronous Motor Bulletin PB5000-2.

L-809

ELLIOTT COMPANY
Ridway Division • Ridgway, Pa.
Plants at: JEANNETTE, PA. • RIDGWAY, PA.
AMPERE, N. J. • SPRINGFIELD, O. • NEWARK, N. J.
DISTRICT OFFICES IN PRINCIPAL CITIES

HALF CENTURY OF 1901 1951 POWER PROGRESS

News About People

(*Continued from page* 22)

a newly created position, for West Penn Electric Co. Van Nostrand started with Philadelphia Electric Co in 1925 and was in the system operating department of Pennsylvania Power & Light Co before joining the War Production Board in 1942. With WPB he served in the power supply section of the Office of War Utilities and as regional coordinator of the Southwest Area for Power Coordination. Since 1945 he has been operating superintendent of Southwestern Public Service Co, Amarillo, Tex., where he organized the system operating department. He is a member of the Edison Electric Institute national power supply committee.

•

Albert Pfaltz Resigns NAED Publicity Post

Albert Pfaltz has resigned as public relations manager of the National Association of Electrical Distributors. He is setting up his own office as consultant in the public relations and promotion fields.

Pfaltz will continue to do free lance editorial work for NAED.

Before joining NAED in 1945, he was director of public relations for the Society of the Plastics Industry. Prior to that he was associated with the National Electrical Manufacturers Association for more than ten years as publicity director. He also was editor of the "Adequate Wiring Reporter" and "Nema News."

Pfaltz will maintain his office at 140-50 Ash Ave, Flushing, N. Y.

•

Thomas H. Dougherty, district manager of the Mauch Chunk office of Pennsylvania Power & Light Co, has been appointed manager of the combined offices of Mauch Chunk, Lansford, and Tamaqua. Headquarters will be in Lansford. William K. West was named local manager at Tamaqua to assist Dougherty in that area.

Louis Ambrose has resigned as superintendent of the Ellensburg, Wash., municipal light department to join Seattle City Light as a field engineer on the Skagit hydroelectric development.

Trumbull Makes Bangert Manager of Engineering

Charles Bangert, Jr, has been appointed manager of engineering for Trumbull Electric Manufacturing Co, Plainville, Conn. He will be in charge of all engineering activities.

Bangert started on General Electric Co's test course and later was selected for the company creative engineering program on the basis of his work in

CHARLES BANGERT, JR

design and development. He joined Trumbull in 1947 as designing engineer and was appointed product planning manager under the marketing department in February, 1950. In the latter post he coordinated product developments with the engineering and manufacturing departments. He became assistant manager of engineering last October.

•

Dr Lester M. Field, of Stanford University's electrical engineering faculty, has been made a full professor, the youngest man now holding such rank on the campus. His principal scientific contributions have been made in the development of the traveling wave tube.

OBITUARY

Edward J. Vanderlinde

Edward J. Vanderlinde, 58, president of the National Electrical Contractors Association and of the Vanderlinde Electric Corp, Rochester, N. Y., died suddenly March 24 at Fredericksburg, Va.

He became president of NECA in 1949 and was one of the founders of the Rochester chapter. Vanderlinde had been a member of NECA's board of governors since the organization

E. J. VANDERLINDE

was established. He also served as vice president of the New York State Electrical Contractors and Dealers Association.

•

Clifford R. Oliver

Clifford R. Oliver, retired vice president of New England Power Co, died at Wellesley, Mass., March 17. He was active in the engineering and operating development of the New England Electric System from the early hydroelectric plant construction in the Deerfield River Valley to its most recent expansion.

Oliver was at one time assistant vice president of the New England Power Association and served on the municipal electric light board of Wellesley.

•

William H. Allen, 59, director of the Missouri Association of Public Utilities, died at Jefferson City March 12. He became general counsel of the association in 1945 and later was named director.

Edward Neumann, 85, retired superintendent of maintenance for San Antonio (Tex.) City Public Service Board, died in that city recently. He had served the municipal system as superintendent for 30 years.

Oliver Roland Hood, 83, one of the founders of Alabama Power Co, died at Gadsen, Ala., recently. He formed the utility in 1906 with Capt. V. P. Lay and Earl Lay.

MANUFACTURERS and MARKETS

Sylvania Sales, Earnings Reach New Highs in 1950

Sales and earnings of Sylvania Electric Products, Inc, reached new highs last year.

Consolidated net sales of $162,514,814 in 1950 were 58% over the $102,539,866 reported for 1949. The previous record was $125,750,512 in the war year 1945.

Sylvania listed consolidated net income for the year of $8,221,185 after provision for federal income taxes. This was 169% above the 1949 total of $3,052,840. Previous largest net earnings were $3,823,382 in 1948.

Earnings amounted to $5.37 a share on 1,456,550 shares of common stock outstanding, compared to $1.82 in 1949. Dividends paid to stockholders amounted to $3,305,380, compared to $2,345,674 the year before, and provision for federal taxes on income was $11 million, compared to $1,975,000 in 1949.

Sales in each quarter of 1950 exceeded those of the preceding three months. The usual seasonal summer decline did not occur.

The radio tube division tripled its production between September, 1949, and December, 1950; output of television sets tripled during the calendar year; and automobile radio set production more than doubled. Production of incandescent, fluorescent, and photoflash lamps was at a record level, while demand for fluorescent lighting fixtures more than doubled during the second half of the year.

•

L-M Building Olean Plant for Protective Equipment

Line Material division of McGraw Electric Co is building a $500,000 factory at Olean, N. Y., for production of protective power line equipment.

Manufacture of this equipment will be transferred from the South Milwaukee plant because L-M is turning out the Army's 3.5 in. rocket launcher there. The Olean plant is expected to be producing lightning arresters and fuse cutouts by next fall. It will have 70,000 sq ft of floor space, about twice the size of the Sherman, Tex. plant recently announced (EW, Feb. 12, p 166), and will employ about 150 persons.

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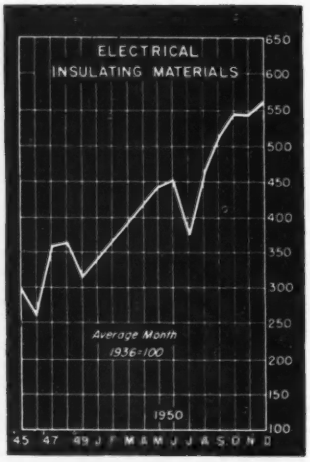
Insulating Materials Sales Up Again in December

Sales of electrical insulating materials rose again in December after a slight November drop.

The index of sales billed compiled



by the National Electrical Manufacturers Association reached 564 in December, 4% above November's 542. Sales for the month were 67% above December, 1949, when the index read 338.

•

Truck Association Enlarged

The Electric Industrial Truck Association has voted to open its membership to manufacturers of gas-powered industrial trucks and tractors. The name of the association will be changed accordingly to The Industrial Truck Association. Among the reasons for the change was the belief that general industry could be better served.

MANUFACTURING BRIEFS

Fabricators' copper stocks dropped to 268,800 tons at the end of January, the smallest supply on hand in several years. Products shipped during the month from brass mills, wire mills, and foundries contained 126,562 tons of new refined copper, an increase of 12,100 tons over December shipments. New business booked by manufacturers in January called for use of 94,770 tons of copper, a 19,294-ton decrease from the end of December.

Westinghouse Electric Corp has moved its Northwestern district headquarters and Chicago sales office to a new and permanent location on the second floor of The Merchandise Mart. More than 300 employees were involved in the transfer, which gives the firm one-third more space than before.

General Electric Co's Lamp Department has opened a new warehouse in Houston, Tex., to stock a complete line of lamps. N. E. Varnum has been made supervisor of the warehouse. He was transferred from the Lamp Department's branch in Memphis, Tenn.

Globe Lighting Products, Inc, Brooklyn, N. Y., has moved its general offices, sales offices, and East Coast manufacturing plant to 1710 Flushing Ave in Brooklyn.

SALES ASSIGNMENTS

COMPANY STAFFS

Highway Trailer Co, Edgerton, Wis., has appointed C. C. Hobek Philadelphia branch manager. He has been manager of the Pittsburgh branch.

Nordberg Manufacturing Co, Milwaukee, has named Thomas B. McMeekin sales and service engineer for the Heavy Machinery Division in the San Francisco office. He succeeds George Lienhard, who has resigned.

Aluminum Co of America has made Lewis P. Favorite manager of its New York district sales office. He succeeds Edward B. Wilber, who has been elected president of

American Lumber & Treating Co, Chicago. Favorite has been product manager in charge of the sale of die castings for Alcoa.

Westinghouse Electric Corp has made W. P. L'Hommedieu assistant Pacific Coast district manager with headquarters in San Francisco. Frank E. Bodine, assistant district manager of the Central Station Division, succeeds him as manager of the central station division for the Pacific Coast district. L'Hommedieu has been with Westinghouse since 1906.

Graybar Electric Co, New York City, has appointed S. W. Scott Pacific district manager, with headquarters in Los Angeles. He succeeds H. L. Harper, who is retiring. L. J. Olivier is the new manager of the New Orleans branch house. He has been merchandise manager at New Orleans.

General Electric Lamp Department, Nela Park, Cleveland, has appointed C. A. Rost manager of the North Pacific sales district in Portland, Ore. He succeeds Walter J. Pitblado, who died in December. Rost has been in the Portland office since July.

Link-Belt Co, Milwaukee, has appointed Andrew K. Kolar assistant sales manager for Pershing Road plant products, with office at 300 W. Pershing Road, Chicago. He will be succeeded as district manager at Moline, Ill., by Stuart T. Penick, who has been district engineer at Dallas, Tex.

Allis-Chalmers Manufacturing Co, Milwaukee, has appointed five new sales representatives. They are John R. Cooper, assigned to the Chicago district office; Thomas M. Franey, Duluth, Minn.; John P. McLaney and Webster C. English, Charlotte, N. C.; and Andrew J. Beall, Jr, New Orleans.

REPRESENTATIVES

Continental Foundry & Machine Co, Erie, Pa., has appointed Warriner Equipment Co, 504 Delta Bldg, New Orleans, district representative for soot blowing systems and Hawkins-Hamilton Co, 814 Independence Bldg, P. O. Box 1575, Charlotte, N. C., district representative for valves, regulators, controls, and related equipment.

Reliance Gauge Column Co, Cleveland manufacturer of steam boiler safety devices, has named Charles P. Crowley, 711 Gibbons St, Los Angeles, sales engineer in the southern California area.

Kuhlman Electric Co, Bay City, Mich., has picked Donald Corp, 308 East Sixth Ave, Des Moines, Iowa, to handle its line of transformers in central and eastern Iowa.

Marcus Transformer Co, Hillside, N. J., has appointed W. D. Evan, Jr, Pacific Industries, 1046 South Olive St, Los Angeles 15, as sales representative.

Metal Prices

March 26, 1951

COPPER, Conn. Y., lb	$ .24½
LEAD, N. Y., lb	.17
ZINC, prime Western, E. St. Louis, lb	.17½
TIN, Straits, qual., N. Y., lb	1.34
ALUMINUM, ingot, base price	.19
NICKEL, base price	.50½
STEEL, billets, Pitts., ton	56.00
STEEL, scrap, No. 1 heavy, Pitts., ton	45.00

NEW ELECTRICAL CONSTRUCTION

A weekly selection of U. S. electrical construction projects announced by private and government utility systems involving more than $70,000. Also listed are major industrial and construction jobs where electrical work is indicated or implied

UTILITIES

Proposed Construction

California—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, installing electric elevator for Tecolote Tunnel, Cachuma Proj., approx. 15 mi. northwest of Santa Barbara, Spec. DC-3358.

Colorado—Bureau Reclamation, Dpt. Interior Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Loveland, Colo., circuit breakers, grounding blades and disconnecting switches, for Flatiron and Pole Hill switchyards, Colorado-Big Thompson Proj., Spec. DS-3351. L. N. McClellan, ch. engr.

Ia., Burlington—Sylvania Electric Products Inc., C. A. Haines, genl. mgr., 1740 Broadway, New York, N. Y., mfg. plant. **$1,500,000.**

Kansas—Twin Valley Electric Co-operative, Altamont, distr. lines, Labette and Nersho Counties. **$160,000.** Frank Horton & Co., Lamar, Mo., consult, engrs.

Kansas—Jewell Mitchell Electric Co-operative, Mankato, 519 mi. rural distr. lines, sys. imprvs., Jewell Co. **$960,000.**

Mass., Natick—Martin Cerel, 18 E. Central St., 8 story center bldg. with 1 story wings, 100,000 sq. ft. radar plant, Lake Cochituate Laboratory. **$2,000,000.** Electronics, Inc., 11 Leon St., Roxbury, consult. engrs.

Mich., Lapeer—State, A. N. Langius, dir. State Bldg. Dpt., Lansing, power plant imprvs., underground utilities, water mains, sewers, etc. at State Home and Training School. E. R. Little Co., 1807 Kales Bldg., Detroit, engrs.

Montana—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., misc. structural steel for generator room for Hungry Horse Power Plant, Hungry Horse Proj., Spec. DS 3346, L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.

Neb., Omaha—Omaha Public Power Dist., 17 and Harney Sts., service headquarters bldg. **$828,000.** C. W. Minard, c/o owner, ch. engr.

New Mexico—Sierra Electric Co-operative, Truth or Consequences, 139 mi. rural distr. lines, Sierra Co., **$188,000.** F. B. Bridges, c/o owner, engr. and mgr. Tymes & Lofiin, 346 Korber Bldg., Albuquerque, consult. engrs.

O., Canton—Timken Roller Bearing Co., 1835 Dueber Ave. S.W., electric furnaces for steel production. **$5,503,000.**

O., Columbus—Ohio State University, Columbus, power plant modification. $1,000,000. Sargent & Lundy, 140 S. Dearborn Ave., Chicago 3, Ill., engrs.

Oregon—Bonneville Power Admin., 827 N. E. Oregon St., Portland, Ore., control house for H. P. Alvey sub-station, Lane Co., Inv. 5661. Plans deposit $25.

Pa., Pittsburgh—City Bureau Recreation, City County Bldg., swimming pool and dressing room, Rockland Ave. $160,000. Plans deposit $30. Mitchell & Ritchey, 306 4th Ave., archts.

Texas—U. S. Eng., 1116 Texas and Pacific Bldg., Fort Worth, power house equip. installation, incl. two 16,667 kva. generators; two 20,700 hp. hydraulic turbines, etc., Inv. No. CIVENG 41-443-51-46, approx. $100,000; switchyard constr. and steel switchyard structures, Inv. No. CIVENG 41-443-51-45, near Whitney, Hill and Bosque Counties.

Texas—Houston County Electric Co-operative, Crockett, 94 mi. rural distr. lines, sys. imprvs., Houston Co. **$240,000.**

Tex., Waco—U.S. Eng., 1127 Texas and Pacific Bldg., Fort Worth, cold storage bldg. and ordnance area., Connally Air Force Base.

Wyoming — Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Contr., Denver, Colo., furnishing, installing generators for Alcova Power Plant, Kendrick Proj., at Alcova Dam which is on north Platte River and approx. 29 mi. southwest of Casper, Spec. DC-3357. L. N. McClellan, ch. engr.

Wyoming — Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars Casper or f.o.b. cars shipping point 2 hydraulic turbines for Alcova Power Plant, Kendrick Proj., Spec. DS-3359. L. N. McClellan, ch. engr.

Alaska—Bureau Reclamation, Dpt. Interior, Palmer, 115-kilovolt Eklutna-Palmer transmission line and 12-47 kilovolt distr. line and distribution sys. for Eklutna Govt. Camp, Eklutna Proj., approx. 30 mi. northeast of Anchorage, Spec. DC-3348.

Low Bidders & Contracts Awarded

Minnesota — Garden Valley Telephone Co., Bagley, imprv., expansion rural telephone sys. in northwest Minnesota, serving Polk, Red Lake, Pennington, Marshall, Mahnomen and Clearwater Counties; construct 482 mi. rural distr. lines, rebuild 1,275 mi. existing line, convert 18 manual exchanges to dial, install 5 new dial exchanges, etc. **$2,065,000.**

O., Bellefontaine—Superior Engine Div. of National Supply Co., 1401 Sheridan Ave., Springfield, O. Contract Awarded. Approx. **$462,541,** three 1,000 kw diesel engines and control-panel equip. for city LIGHT PLANT. City Bd. Control, P. A. Wortman, mayor, Bellefontaine, O. Bids Feb. 27, awarded March 10.

Neb., Omaha—Omaha Public Power Dist., 17 and Harney Sts., Omaha, Neb. Owner Builds. **$4,100,000,** boiler and bldg. changes at South Omaha POWER PLANT; **$580,000,** general PLANT imprvs.; **$425,000,** general reconstruction work on present existing distr. sys. C. W. Minard, c/o owner, ch. engr.

Texas—Russ Mitchell, Inc. and Bruce Constr. Co., 5304 Old Spanish Trail, Houston, Tex. Low Bidder. **$2,198,313,** power house, switchyards and other facilities at $42,000,000 Whitney Dam and Reservoir Project in Central Tex., CIVENG 41-443-51-33. U. S. Eng., 1127 Texas and Pacific Bldg., Fort Worth, Tex. Bids Mar. 15.

Tooele, Utah—C.-L. Electric Co., Pocatello, Odaso. Contract Awarded. **$295,177,** est. $301,994. electrical distr. sys.*** W. W. Clyde Constr. Co., Springville, Utah, **$1,498,721,** est. $1,778,923, construct roads, parking areas and runways; water distr. and sewerage sys.; electrical distr. sys. at Dugway Proving Grounds. U. S. Eng., 74 New Montgomery St., San Francisco, Calif. Bids Mar. 8.

Wash., Seattle—Guy F. Atkinson Co. & Assocs., 10 W. Orange Ave., South San Francisco, Calif. Contract Awarded. **$14,688,030,** Ross POWERHOUSE. City, County-City Bldg., Seattle, Wash. Bids Mar. 7, awarded Mar. 14.

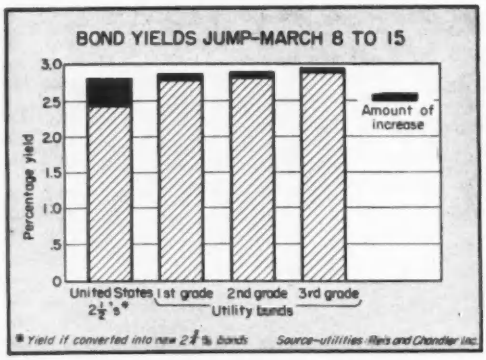
INDUSTRIAL, COMMERCIAL & PUBLIC BUILDINGS

Proposed Construction

Calif., San Diego—San Diego Hospital Assoc., 1041 7 Ave., 300-bed hospital. **$3,500,000.** Stone & Mulloy & S. P. Marraccini, 619 California St., San Francisco, archts. Johnson, Hatch & Wulf & Frank Hope, c/o owner, staff engrs.

La., Lake Charles—U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex., barracks, **$2,000,000;** mess halls, **$750,000;** misc. construtcion, **$1,792,000;** fueling sys. and storage, **$300,000;** shops, **$450,000;** rehabilitation bldgs., facilities, **$175,000;** runways, **$1,000,000;** taxiways, **$1,250,000;** hangars, **$1,000,000;** warehouses, **$850,000;** water lines, facilitiesfi **$150,000;** lighting sys., **$250,000,** at Lake Charles Air Force Base.

Electrical Business Outlook



GOVERNMENT ACTION is responsible for rise in utility bond yields. The Treasury has agreed to pay more on its bonds, and this affects all bond issues of private companies

What Will the Bond Market Do Next?

The utility bond market is under the greatest pressure in over two years. The pressure comes from the U. S. Treasury and Federal Reserve Board which have launched a major campaign to tighten credit. They have raised interest rates on government bonds, and so on all borrowing, at a time when many electric utilities are planning heavy bond issues.

The chart above shows the completely changed situation in the bond market. For the first time in ten years, U. S. government bonds are selling below par. Investors can get a better yield on governments now (2.8%) than they could on utility bonds less than a month ago.

Yields on Utility Issues Highest Since 1948

Yields on utility issues have jumped accordingly—to the highest level since November 1948. But it's significant that there's been no panic in the market. Bond prices have held much better than some experts thought they would without strong government support.

To understand what's happening in the bond market, it's a good idea to review the positions of the various buyers and sellers:

The Treasury is trying to sell a new non-marketable 2¾% bond to savings banks and insurance companies. The Treasury wants this issue to go over. But it's largely an anti-inflation measure to soak up marketable bonds that might be turned into cash for loans to corporations. The Treasury itself doesn't have to raise much cash in the first half of 1951.

The Federal Reserve is letting the market for outstanding Treasury bonds dip instead of supporting these bonds at par, as it did for years. By staying out of the market the Federal Reserve tightens credit in two ways. It forces up interest rates, and it makes less cash available to the lending institutions who previously could get it by selling bonds to the Federal Reserve.

But this aggressive policy is possible only so long as the Treasury is not putting out huge bond issues, like those of the last war, which would require Federal Reserve support.

Private corporations—including utilities—are coming into the market for increasing amounts to finance 1951 capital expenditures.

Big lenders—banks and insurance companies—still have their long term funds heavily committed in residential mortgages, state and municipal bonds. So they are not bidding heavily for new government or corporate bonds.

Yields Will Rise Until the Summer

In this situation it's small wonder yields are up. The question is whether they will go higher, and how much.

The Federal Reserve will have a chance to boost interest rates again when the new Treasury issue is out of the way (about April 10). At that time pressure of new corporate issues will still be heavy. Lenders will not yet be clear of mortgage commitments. Yields will rise if the Federal Reserve sells some of its bonds or forces bank sales by raising bank reserve requirements.

Such action is likely to mark the high point of pressure on the bond market. By summer the Treasury will be running a large cash deficit. It will need Federal Reserve support for new bond issues unless Congress acts promptly on taxes. So the Federal Reserve is likely to concentrate further action on short term interest rates and curbing commercial bank loans.

There will also be more demand for bonds as mortgage lending tapers off. And utilities may then be able to market new issues more advantageously. In any case the utilities will have no choice but to sell some bonds to finance construction.

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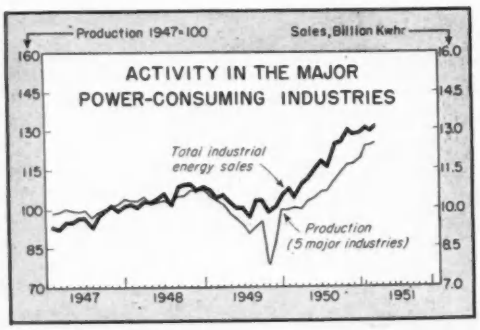
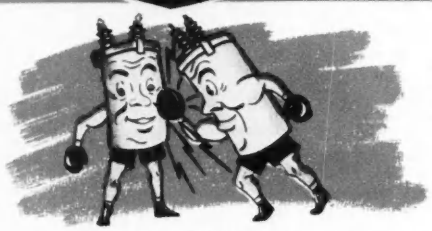


INDUSTRIAL POWER SALES were up again in March as activity in the main energy consuming industries edged higher

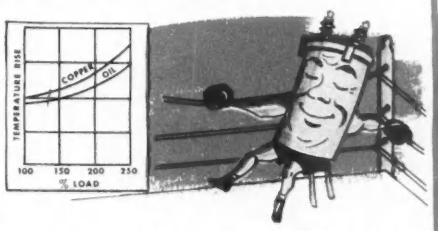
The Lightweight Champ!

He's a real champ! No managerial headaches about maintenance costs . . . they're practically nil with "Hi". His performance record is unexcelled . . . and what's more . . . he's a natural lightweight which means less strain on his handlers. These facts, together with an ample, superior circulatory system that makes him cooler and more rugged under fire all add up to the lightweight champ . . . "Hi" HiperCore.

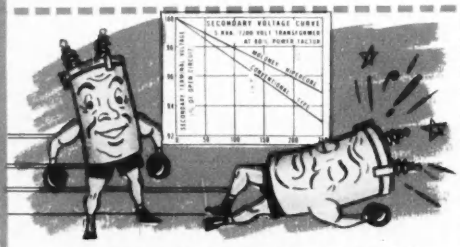
The Reasons



HIGH SHORT CIRCUIT STRENGTH—Securely braced coils, made mechanically rigid with heat-curing bonding materials, enables "Hi" to withstand the most severe mechanical strains under short circuit conditions. Shifting or distortion of his windings is prevented, thus eliminating insulation abrasion. You can't damage his cores with short circuits either because they are bonded together with a force of several thousand pounds to prevent separation of the laminations.



SURGE PROTECTION—"Hi's" superior design has been surge-proved on Moloney's 2,500,000 volt surge generator with impulse tests well in excess of minimum requirements. In order for "Hi" to surge-prove at the high level that he does, he has properly distributed insulation, has had air and moisture pockets removed by vacuum treatments, and has a superior oil of very high dielectric strength. A higher factor of safety is the result.



HIGH OVERLOAD CAPACITY—Oriented cold rolled silicon steel cores permit greater flux carrying capacity in a smaller mass. Extensive use of cooling ducts results in more rapid cooling of the cores and windings, thus achieving a lower hottest spot temperature gradient. Because of this "Hi" HiperCore can, without damage, carry peak overloads that would greatly shorten the life of ordinary transformers which might operate satisfactorily at normal loads.

HiperCore

YOU BE THE JUDGE . . .

Check these features against them all. You'll be sure to come up with the decision that HiperCore is the lightweight champ!

- **Long Operating Life**
- **High Factor-of-Safety in Design**
- **Light weight**
- **Small size**
- **Better Voltage Regulation**
- **Superior Tap Changer**

MED1-G

MOLONEY ELECTRIC COMPANY

Manufacturers of Power Transformers • Distribution Transformers • Load Ratio Control Transformers • Step Voltage Regulators • Unit Substations

SALES OFFICES IN ALL PRINCIPAL CITIES • FACTORIES AT ST. LOUIS, MO. AND TORONTO, ONT., CANADA

Expanded Assembly Lines Increase CURVACORE Transformer Production

IT IS NOW EASIER to obtain *Curvacore* distribution transformers. Production facilities are expanded. You'll be able to take advantage of the inherent benefits of *Curvacore* transformers sooner.

Curvacore transformer design improvements give more performance for your distribution dollar. Cold rolled oriented steel strips have high flux carrying capacity and low hysteresis loss. The core steel is wound, shaped, annealed and cut into two turn lengths. Then each length is fed through the coil structure so that it retains its original core shape.

You benefit from these improvements:

1. 50% lower exciting current
2. Better ratio of losses
3. Improved short time thermal capacity
4. Size and weight reduced 15%
5. Regulation improved up to 15%

This wound core design provides a more efficient path for the magnetic flux, resulting in low exciting current. The *Curvacore* transformer has better thermal performance, too! Increased cooling area within the windings reduces the copper-to-oil temperature gradient, improves regulation and adds years to service life. Weight is reduced, making the *Curvacore* transformer compact, easy to handle and to install.

Curvacore is an Allis-Chalmers trademark.

Former Advantages Retained

In addition to *Curvacore* transformer design you still get *Spra-Bonderized* tanks with 3-coat baked-on finish of alkyd-resinous paint; simplified high voltage angle bushings with handy chuck type connectors; sturdy tank construction; high quality craftsmanship throughout.

For more information about the *Curvacore* transformer, contact your local Allis-Chalmers district office or write Allis-Chalmers, Milwaukee 1, Wisconsin. A-3366

Typical core and coil assembly shown above. Present ratings of Curvacore transformers are 25 kva and below. Others will be available shortly.

ALLIS-CHALMERS